From:	"Brooks, Karl" </O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=78AC91F4DB6D44F58424B504D5AA3C7D-BROOKS, KARL>
To:	Tapia
	Cecilia;Hammerschmidt
	"Ron; Hague"
	Mark;
CC:	
Date:	1/13/2014 6:25:56 AM
Subject:	Fw: WLL Area 1 Heating Event
Attachments:	40056510.pdf
	40241235.pdf

Pls revw and draft response for my signature.

Tx

From: Harvey Ferdman <HarveyFerdman@aol.com>
Sent: Monday, January 13, 2014 12:18:15 AM
To: Brooks, Karl; Tappia.Cecilia@epa.gov; Hatch, Sarah
Cc: Bill.Otto@house.mo.gov; MOMcNeil,Margo; Christopher.Nagel@dnr.mo.gov; Shawn.Muenks@dnr.mo.gov; MATT LAVANCHY; Todd.Thalhamer@CalRecycle.ca.gov; Kerry_DeGregorio@Blunt.Senate.gov; Joeana_Middleton@McCaskill.Senate.Gov; Douglas Clemens; 'Terrie Boguski'
Subject: WLL Area 1 Heating Event

Karl,
Thank you for your interest in the research our community has been doing regarding the West Lake and Bridgeton Landfills.

In our last conversation, you requested that I forward any information I was able to assemble regarding hazards of leaving PVC liners in the boring holes in Area 1 during the work that is scheduled to begin this week.

Please review the following.

Item 1: Boring showing elevated sub-surface temperature in Area 1.
Item 2: Email statement from a recognized landfill expert who has been consulting on the SSE in the Bridgeton Landfill in which he raises cautions about leaving the PVC liners in

place.
Item 3: Documented presence of petroleum soaked soils and possible “shock sensitive” materials in Area 1.

I continue to be concerned about the PVC pipes providing a possible oxygen paths in Area 1. I believe this information supports my concern. I look forward to your reply.

Item 1:
On the last state and local officials update conference call, you mentioned that a key reason you were OK with leaving the PVC pipes in place is because you were told that there have never been any high temperature readings in Area 1. I’m sorry this may contradict the information you were told and I hope you find the following data helpful. This is from pdf page 22 of the attached report 40056510.pdf. It shows a temperature of 140 degrees at 56 feet deep in Area 1 boring logs. According to our first responders who have been studying landfill fires and sub-surface events and their management, any reading over 131 degrees at depth is considered a possible sub-surface smolder event and merits further testing and monitoring. I have also inquired to our citizen researchers regarding their claim that there was a fire in the proximity of this well after the boring sample was taken that apparently reached the surface before being controlled by pouring a slurry into the area. I will forward documentation on that event as soon as I am able to confirm it. In the meantime, I hope you and your team find this information useful.

Soil Boring Log

McLaren Hart

Boring No.	Project No./Name	Page:
WL-110	07.0803035.003.002	2 of 2

Start/Finish Date	Site Name and Location
9/6/95	West Lake Landfill; Bridgeton, Missouri

Drilling Contractor	Boring Location:	Area 1
Drilling Service Company	Ground Surface Elevation:	484.41 (Planned Boring location, not surveyed)
Driller	Northing:	1068889.01
Bruce Murphy	Easting:	516645.03

Drilling Equipment	McLaren/Hart Geologist/Office
LDH-80T Drilling Rig, Large Diameter Auger	Tim Biggs / St. Louis

Bit Size/Type	Sample Method	T.D. Borehole	Well Installed?
24" OD, Solid Auger	Grab from Augers	56'	None Installed

Remarks:

Depth (ft)	Sample ID #	Geiger Reading (mR/hr)	Description
55	WL-110 55'	Background (0.02-0.04)	50.0-56.0' Native Alluvium: dark gray, clayey silt; moist; very warm.
60	WL-110 56'	Background (0.02-0.04)	@ 56.0' sample had a temperature of 140° F Boring terminated at 56.0'

Item 2:

From: Todd Thalhamer
Date:01/09/2014 3:38 PM (GMT-06:00)
To: MATT LAVANCHY
Subject: RE: Fwd: WLL Trench Piping Issue

Matt,

Sorry for the delayed response, my kids gave me a nasty bug that I am now just coming out to see the world again.

While the methods the landfill are proposing are acceptable, you are correct with the potential outcome. These pipes can be direct conduits to an sse. I have seen these types of investigative methods add to problems over time. My questions are

1. Given the potential for an sse, would one want to you use steel piping?

2. Past maintenance issues have shown the lf is unstable in areas, what type of seal is going to be place are the pipe and how will it be maintained.?

3.Will the piping be added to an weekly inspection list?

4. Will the piping be protected from equipment?

5. One has to maintain these pipes and ensure they don't become a pathway for oxygen.

Sent from my T-Mobile 4G LTE Device
-------- Original message --------
From: MATT LAVANCHY
Date:01/08/2014 4:27 PM (GMT-08:00)
To: Todd Thalhamer
Cc: TERRY LOEHRER
Subject: Fwd: WLL Trench Piping Issue

Todd, not sure if this was sent to you already but I think your expert opinion in this should be heard. My opinion would just be an opinion, but allowing a means for oxygen to be drawn into that part of the landfill will only support the combustion process of any sse that makes its way there.

Matt

Sent from my Verizon Wireless 4G LTE Smartphone
-------- Original message --------
From: Harvey Ferdman
Date:01/08/2014 4:38 PM (GMT-06:00)
To: MATT LAVANCHY ,Todd.Thalhamer@CalRecycle.ca.gov
Subject: WLL Trench Piping Issue
Matt and Todd,
Todd, I mentioned this issue to Matt and he asked me to send this email:
On a briefing conference call today by the EPA, they said that the next phase of building a barrier in Area 1 at West Lake Landfill is to do core sampling using a sonic drill. The holes left from the drilling are going to be fitted with PVC piping and a removable cap so they can access them in the future if needed. The deepest they expect to go is 80 feet..
My question and concern is: is it safe to leave multiple pipe paths deep into this dump that can potentially allow oxygen infiltration? I asked the EPA if a dump expert had reviewed this part of the plan, and, after a lot of dancing, the answer was effectively a no, as they did not see any reason for the concern that I raised. My fear is that someone in the future (or some natural act, like a tornado, earthquake, or animal) may damage a cap or two and open up a pathway for oxygen to make it deep within this dump and start a smolder event or fire, and the potential for odor releases.
Should I be concerned about this?

Item 3:

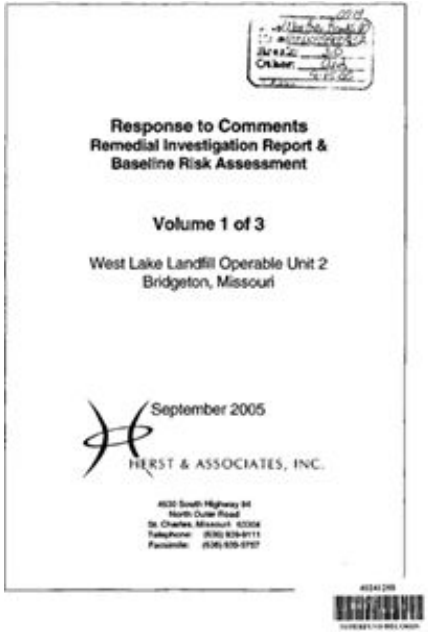
In the presence of petroleum soaked soil, can this start an SSE during the construction of the Isolation Barrier?

Note: Page 18 of document 40241235.pdf – VII Waste related information:
Waste Characteristics check-marked are: 2. Ignitable 3. Radioactive 5. Toxic and page 19 - Item 5 - Incompatible Wastes and presence of flammable and **"shock sensitive"** materials

Document 40056510:

1. Area 1 Boring Hole Samples
    a. WL-101 at 5 ft discolored with petroleum odor OVM readings >10x background
    b. Many other borings show similar presence of petroleum

    Note: Page 18 – VII Waste related information: **Waste Characteristics check-marked are: 2. Ignitable 3. Radioactive 5. Toxic and page 19 - Item 5 - Incompatible Wastes**
2. Area 1 – An underground diesel tank is located beneath the asphalt paved area in the west portion of Area 1. The tank is no longer in use but has not be removed because it is within the boundaries of Area 1 and has leaked into the surrounding area – another tank leaked prior to removal in 1993 resulting in "floating product thickness as high as 3.7 feet has been observed" according to the following document:



Response to Comments
Remedial Investigation Report &
Baseline Risk Assessment

Volume 1 of 3

West Lake Landfill Operable Unit 2
Bridgeton, Missouri

September 2005

HERST & ASSOCIATES, INC.

Harvey Ferdman
Policy Advisor to
Missouri State Representative Bill Otto, District 70
St. Louis, MO 63017
314-469-0595
314-761-5100 (cell)

ENGINEERING MANAGEMENT SUPPORT INC.

12335 West 53rd Ave. Suite 201
Arvada, CO 80002

Telephone (303) 940-3426
Telecopier (303) 940-3422

February 25, 1997

Mr. Jalal El-Jayyousi
State of Missouri
Department of Natural Resources
Division of Environmental Quality
P.O. Box 176
Jefferson City, MO 65102-0176

Mr. John Niffenegger
Sverdrup
13723 Riverport
Maryland Heights, MO 63043

SUBJECT : Copies of Boring Logs and Aquifer Testing Results
West Lake Landfill Operable Unit 1
Bridgeton, Missouri

Dear Messrs. El-Jayyousi and Niffenegger,

Mr. Steve Kinser of USEPA Region VII requested that we forward copies of pertinent appendices from two recent McLaren/Hart reports on the subject project for your use. Specifically, the following information is enclosed:

- From the Soil Boring/Surface Soil Investigation Report, West Lake Landfill Areas 1 &2 (McLaren/Hart, November 26, 1996):
  - Area 1 Boring Logs
  - Area 2 Boring Logs
  - Area 1 Soil Boring Downhole Gamma Logs
  - Area 2 Soil Boring Downhole Gamma Logs
  - PVC Boring Downhole Gamma Logs
- From the Groundwater Conditions Report, West Lake Landfill Areas 1 &2 (McLaren/Hart, November 26, 1996):
  - Boring Logs and Well Construction Details
  - Aquifer Testing Results

If you have any questions please call me.

Sincerely,
ENGINEERING MANAGEMENT SUPPORT, Inc.

Robert T. Jelinek, P.E.

Enclosures

cc: (w/ enclosures):
Steve Kinser, USEPA Region VII

(w/o enclosures):
Doug Borro - Laidlaw Waste Systems Inc.
Ward Herst - Golder Associates
Michael Hockley - Spencer Fane Britt & Browne
Steve Landau - Cotter Corporation
Charlotte Neitzel - Holme Roberts & Owen
James Wagoner II - U. S. Department of Energy
William Werner - Stolar Partnership
W.E. Whitaker - Rock Road Industries

Prepared for:

The West Lake Respondent Group

Prepared by:

McLaren/Hart Environmental Engineering Corporation
1000 Town Center, Suite 600
Southfield, Michigan 48075

Prepared by:

David J. Heinze
Senior Associate Engineer

Reviewed by:

Bruce E. Ehleringer
Managing Principal Geoscientist

November 26, 1996

Project No. 07.0803035

SOIL BORING/SURFACE SAMPLE INVESTIGATION REPORT WEST LAKE LANDFILL RADIOLOGICAL AREAS 1 AND 2 BRIDGETON, MISSOURI

APPENDICES

Area 1 Boring Logs

Soil Boring Log

McLaren Hart

Boring No.	Project No./Name	Page:
WL-101	07.0803035.003.002	1 of 1

Start/Finish Date	**Site Name and Location**
8/4/95	West Lake Landfill; Bridgeton, Missouri
Drilling Contractor	**Boring Location:** Area 1
Hart Environmental Drilling	**Ground Surface Elevation:** 456.5
Driller	**Northing:** 1069549.55
Max Tinnin	**Easting:** 516317.21

Drilling Equipment	**McLaren/Hart Geologist/Office**
CME-55 Drill Rig, Hollow Stem Augers	Tim Biggs / St. Louis

Bit Size/Type	Sample Method	T.D. Borehole	Well Installed?
4 1/4" ID; 8 1/4" Hole	5' Continuous Sampler	25'	None Installed

Remarks:

Depth (ft)	Sample ID #	Geiger Reading (mR/hr)	Description
5	WL-101 5'	Background (0.02-0.04)	0.0-17.0' Landfill Debris: soil consisting of clayey silt to sandy silt, and crushed rock; no trashy debris encountered; dry to moist.
10	WL-101 10'	Background (0.02-0.04)	@ 5' soil discolored with petroleum odor; OVM readings greater than 10 X background.
15	WL-101 15'	Background (0.02-0.04)	
20	WL-101 20'	Background (0.02-0.04)	17.0-25.0' Native Alluvium: grayish brown, slightly silty, plastic clay grading to dark gray, very fine-grained sand; moist to wet.
25	WL-101 25'	Background (0.02-0.04)	@ 23.0' wet Boring terminated @ 25'

Notes:

Radiological samples collected at 5 and 20 feet below ground surface.

Non-radiological samples collected at 5 and 25 feet below ground surface; contingency sampling.

Perched water not encountered during boring activities.

Groundwater encountered at 23 feet below ground surface.

Soil Boring Log

McLaren Hart

Boring No.	Project No./Name	Page:
WL-102	07.0803035.003.002	1 of 1

Start/Finish Date	**Site Name and Location**
8/4/95	West Lake Landfill; Bridgeton, Missouri
Drilling Contractor	**Boring Location:** Area 1
Hart Environmental Drilling	**Ground Surface Elevation:** 462.8
Driller	**Northing:** 1069260.46
Max Timin	**Easting:** 515974.05

Drilling Equipment	**McLaren/Hart Geologist/Office**
CME-55 Drill Rig, Hollow Stem Augers	Tim Biggs / St. Louis

Bit Size/Type	Sample Method	T.D. Borehole	Well Installed?
4 1/4" ID; 8 1/4" Hole	5' Continuous Sampler	34'	None Installed

Remarks:

Depth (ft)	Sample ID #	Geiger Reading (mR/hr)	Description
5	WL-102 5'	Background (0.02-0.04)	0.0-23.0' Landfill Debris: trashy debris consisting of wood, plastic, glass, and wire; soil consisting of olive gray silt and dark gray, silty, plastic clay to grayish brown, silty sand and crushed rock; dry to moist.
10	None Taken	Background (0.02-0.04)	
15	None Taken	Background (0.02-0.04)	
20	None Taken	Background (0.02-0.04)	
25	WL-102 25'	Background (0.02-0.04)	23.0-34.0' Native Alluvium: grayish brown, slightly silty, plastic clay grading to dark gray, fine-grained sand; moist.
30	WL-102 30'	Background (0.02-0.04)	
35	WL-102 35'	Background (0.02-0.04)	Auger refusal @ 34'

Notes:

Radiological samples collected at 5 and 15 feet below ground surface; downhole logging indicated elevated gamma readings from 2.0 - 4.0'.

Non-radiological samples not collected during boring activities.

Perched water not encountered during boring activities.

Groundwater not encountered during boring activities.

Soil Boring Log

McLaren Hart

Boring No.	Project No./Name	Page:
WL-105A	07.0803035.003.002	1 of 2

Start/Finish Date	**Site Name and Location**
8/8/95 / 8/9/95	West Lake Landfill; Bridgeton, Missouri
Drilling Contractor	**Boring Location:** Area 1
Hart Environmental Drilling	**Ground Surface Elevation:** 467.2
Driller	**Northing:** 1069136.26
Max Timin	**Easting:** 515871.62

Drilling Equipment	**McLaren/Hart Geologist/Office**
CME-55 Drill Rig, Hollow Stem Augers	Tim Biggs / St. Louis

Bit Size/Type	Sample Method	T.D. Borehole	Well Installed?
4 1/4" ID; 8 1/4" Hole	5' Continuous Sampler	109'	D-3

Remarks:

Depth (ft)	Sample ID #	Geiger Reading (mR/hr)	Description
5	None Taken	None Taken	0.0-30.0' Landfill Debris: trashy debris consisting of cloth, wood, rope, and plastic; soil consisting of brown and gray silt, and crushed rock; dry to moist.
10	WL-105A 10'	None Taken	
15	None Taken	None Taken	
20	None Taken	None Taken	
25	None Taken	None Taken	
30	WL-105A 30'	None Taken	
35	None Taken	None Taken	30.0-60.0' Native Alluvium: dark gray clayey silt grading to fine to coarse-grained sand and gravel; wet.
40	None Taken	None Taken	@ 30' wet
45	WL-105A 47'	Background (0.04-0.06)	
50	None Taken	None Taken	
55	None Taken	None Taken	
60	None Taken	None Taken	

Soil Boring Log

McLaren Hart

Boring No.	Project No./Name	Page:
WL-105A	07.0803035.003.002	2 of 2

Start/Finish Date	Site Name and Location
8/8/95 / 8/9/95	West Lake Landfill; Bridgeton, Missouri

Drilling Contractor	Boring Location: Area 1
Hart Environmental Drilling	Ground Surface Elevation: 467.2
Driller	Northing: 1069136.26
Max Timin	Easting: 515871.62

Drilling Equipment	McLaren/Hart Geologist/Office
CME-55 Drill Rig, Hollow Stem Augers	Tim Biggs / St. Louis

Bit Size/Type	Sample Method	T.D. Borehole	Well Installed?
4 1/4" ID; 8 1/4" Hole	5' Continuous Sampler	109'	D-3

Remarks:

Depth (ft)	Sample ID #	Geiger Reading (mR/hr)	Description
70	None Taken	None Taken	60.0-109.0' Native Alluvium: dark gray clayey silt grading to fine to coarse-grained sand and gravel; wet.
75	None Taken	None Taken	
80	None Taken	None Taken	
85	None Taken	None Taken	
90	None Taken	None Taken	
95	None Taken	None Taken	
100	None Taken	None Taken	
105	None Taken	None Taken	
110	None Taken	Background	Auger refusal @ 109.0' (bedrock)

Notes:

Radiological samples collected at 10 and 30 feet below ground surface; downhole logging indicated elevated gamma readings from 0.5-11.0'.

Non-radiological samples not collected during boring activities.

Perched water not encountered during boring activities.

Groundwater encountered at 30 feet below ground surface.

Soil Boring Log

McLaren Hart

Boring No.	Project No./Name	Page:
WL-105B	07.0803035.003.002	1 of 2

Start/Finish Date	Site Name and Location
8/10/95	West Lake Landfill; Bridgeton, Missouri

Drilling Contractor	Boring Location:	Farmers Field
Hart Environmental Drilling	Ground Surface Elevation:	466
Driller	**Northing:**	1069148.42
Max Timmin	**Easting:**	515889.50

Drilling Equipment	McLaren/Hart Geologist/Office
CME-55 Drill Rig, Hollow Stem Augers	Tim Biggs / St. Louis

Bit Size/Type	Sample Method	T.D. Borehole	Well Installed?
4 1/4" ID; 8 1/4" Hole	5' Continuous Sampler	79'	I-4

Remarks:

Depth (ft)	Sample ID #	Geiger Reading (mR/hr)	Description
5	None Taken	None Taken	0.0-30.0' Landfill Debris: trashy debris consisting of cloth, wood, rope, and plastic; soil consisting of brown and gray silt, and crushed rock; dry to moist.
10	None Taken	None Taken	
15	None Taken	None Taken	
20	None Taken	None Taken	
25	None Taken	Background	
30	WL-105B 30'	Background (0.04-0.06)	@30' wet
35	WL-105B 35'	Background (0.04-0.06)	30.0-55.0' Native Alluvium: dark gray clayey silt grading to fine to coarse-grained sand and gravel; wet.
40	WL-105B 40'	Background (0.04-0.06)	
45	None Taken	None Taken	
50	None Taken	None Taken	
55	None Taken	None Taken	

Soil Boring Log

McLaren Hart

Boring No.	Project No./Name	Page:
WL-105C	07.0803035.003.002	1 of 1

Start/Finish Date	Site Name and Location
8/15/95	West Lake Landfill; Bridgeton, Missouri

Drilling Contractor	Boring Location:	Area 1
Hart Environmental Drilling	Ground Surface Elevation:	465.7
Driller	**Northing:**	1069155.84
Max Tinnin	**Easting:**	515901.03

Drilling Equipment	McLaren/Hart Geologist/Office
CME-55 Drill Rig, Hollow Stem Augers	Tim Biggs / St. Louis

Bit Size/Type	Sample Method	T.D. Borehole	Well Installed?
4 1/4" ID; 8 1/4" Hole	5' Continuous Sampler	43'	S-5

Remarks:

Depth (ft)	Sample ID #	Geiger Reading (mR/hr)	Description
5	None Taken	0.7	0.0-30.0' Landfill Debris: trashy debris consisting of cloth, wood, rope, and plastic; soil consisting of brown and gray silt, and crushed rock; dry to moist.
10	None Taken	0.2	
15	None Taken	Background (0.02-0.04)	
20	None Taken	Background (0.02-0.04)	
25	None Taken	Background (0.02-0.04)	
30	None Taken	Background (0.02-0.04)	@ 30' wet
35	None Taken	Background (0.02-0.04)	30.0-43.0' Native Alluvium: dark gray clayey silt grading to fine to coarse-grained sand and gravel; wet.
40	None Taken	Background (0.02-0.04)	
45	None Taken	Background (0.02-0.04)	Boring terminated @ 43.0'

Notes:

Radiological samples not collected during boring activities; downhole logging indicated elevated gamma readings from 1.5-5.5'

Non-radiological samples not collected during boring activities.

Perched water not encountered during boring activities.

Groundwater encountered at 30 feet below ground surface.

Soil Boring Log

McLaren Hart

Boring No.	Project No./Name	Page:
WL-106	07.0803035.003.002	1 of 1

Start/Finish Date	**Site Name and Location**
8/11/95	West Lake Landfill; Bridgeton, Missouri
Drilling Contractor	**Boring Location:** Area 1
Hart Environmental Drilling	**Ground Surface Elevation:** 465.4
Driller	**Northing:** 1069301.64
Max Tinnin	**Easting:** 516082.18

Drilling Equipment	**McLaren/Hart Geologist/Office**
CME-55 Drill Rig, Hollow Stem Augers	Tim Biggs / St. Louis

Bit Size/Type	Sample Method	T.D. Borehole	Well Installed?
4 1/4" ID; 8 1/4" Hole	5' Continuous Sampler	20'	None Installed

Remarks:

Depth (ft)	Sample ID #	Geiger Reading (mR/hr)	Description
5	None Taken	Background (0.02-0.04)	0.0-20.0' Landfill Debris: trashy debris consisting of wood, plastic, glass, and wire; soil consisting of dark gray silt to clayey silt, and crushed rock; dry to moist.
10	None Taken	Background (0.02-0.04)	
15	None Taken	Background (0.02-0.04)	
20	None Taken	Background (0.02-0.04)	Boring terminated @ 20.0'

Notes:

Radiological samples not collected during boring activities; downhole logging indicated elevated gamma readings from 2.5-5.0'.

Non-radiological samples not collected during boring activities.

Perched water not encountered during boring activities.

Groundwater not encountered during boring activities.

Soil Boring Log

McLaren Hart

Boring No.	Project No./Name	Page:
WL-106A	07.0803035.003.002	1 of 1

Start/Finish Date	Site Name and Location
8/11/95	West Lake Landfill; Bridgeton, Missouri

Drilling Contractor	Boring Location:	Area 1
Hart Environmental Drilling	Ground Surface Elevation:	462.8
Driller	Northing:	1069317.25
Max Tinnin	Easting:	516061.92

Drilling Equipment	McLaren/Hart Geologist/Office
CME-55 Drill Rig, Hollow Stem Augers	Tim Biggs / St. Louis

Bit Size/Type	Sample Method	T.D. Borehole	Well Installed?
4 1/4" ID; 8 1/4" Hole	5' Continuous Sampler	35'	None Installed

Remarks:

Depth (ft)	Sample ID #	Geiger Reading (mR/hr)	Description
5	None Taken	0.5-1.0	0.0-24.0' Landfill Debris: trashy debris consisting of wood, plastic, glass, and wire; soil consisting of dark gray silt to clayey silt, and crushed rock; dry to moist.
10	None Taken	0.5-1.0	
15	None Taken	0.5-1.0	
20	None Taken	0.05-0.10	
25	WI-106A 25'	Background (0.06-0.10)	24.0-35.0' Native Alluvium: dark gray, silty, plastic clay grading to dark gray, very fine-grained sand; moist to wet.
30	WI-106A 30'	Background (0.06-0.10)	@ 30' wet
35	WI-106A 35'	Background (0.06-0.10)	Boring terminated @ 35.0'

Notes:

Radiological samples collected at 5 and 25 feet below ground surface; downhole logging indicated elevated gamma readings from 0.0-1.0'

Non-radiological samples collected at 30 feet below ground surface; priority pollutant and priority pollutant duplicate collected and analyzed.

Perched water not encountered during boring activities.

Groundwater encountered at 30 feet below ground surface.

Soil Boring Log

McLaren Hart

Boring No.	Project No./Name	Page:
WL-107	07.0803035.003.002	1 of 1

Start/Finish Date	Site Name and Location
9/5/95	West Lake Landfill; Bridgeton, Missouri

Drilling Contractor	Boring Location:	Area 1
Drilling Service Company	Ground Surface Elevation:	486.1
Driller	Northing:	1068909.52
Bruce Murphy	Easting:	516254.31

Drilling Equipment	McLaren/Hart Geologist/Office
LDH-80T Drill Rig, Large Diameter Auger	Tim Biggs / St. Louis

Bit Size/Type	Sample Method	T.D. Borehole	Well Installed?
24" OD Solid Auger	Grab from Auger	52'	None Installed

Remarks:

Depth (ft)	Sample ID #	Geiger Reading (mR/hr)	Description
5	WL-107 5'	Background (0.02-0.04)	0.0-51.0' Landfill Debris: trashy debris consisting of wood, plastic, paper, rubber, yard waste, cloth, brick, carpeting, glass and wire; soil consisting of olive brown silt to grayish brown and dark gray clayey silt, and rock; dry to wet.
10	WL-107 10'	Background (0.02-0.04)	
15	WL-107 15'	Background (0.02-0.04)	
20	WL-107 20'	Background (0.02-0.04)	
25	WL-107 25'	Background (0.02-0.04)	
30	WL-107 30'	Background (0.02-0.04)	
35	WL-107 35'	Background (0.02-0.04)	
40	WL-107 40'	Background (0.02-0.04)	
45	WL-107 45'	Background (0.02-0.04)	
50	WL-107 50'	Background (0.02-0.04)	
55	WL-107 52'	Background (0.02-0.04)	51.0-52.0' Native Alluvium: dark gray, silty, fine-grained sand; wet. @ 51' wet. Boring terminated @ 52.0'.

Notes:

Radiological samples collected at 5 and 51 feet below ground surface.

Non-radiological samples not collected during boring activities.

Perched water not encountered during boring activities.

Groundwater encountered at 51 feet below ground surface.

Soil Boring Log

McLaren Hart

Boring No.	Project No./Name	Page:
WL-108	07.0803035.003.002	1 of 1

Start/Finish Date	**Site Name and Location**
9/5/95	West Lake Landfill; Bridgeton, Missouri
Drilling Contractor	**Boring Location:** Area 1
Drilling Service Company	**Ground Surface Elevation:** 472.5
Driller	**Northing:** 1069144.21
Bruce Murphy	***Easting:*** *516379.68*

Drilling Equipment	**McLaren/Hart Geologist/Office**
LDH-80T Drill Rig, Large Diameter Auger	Tim Biggs / St. Louis

Bit Size/Type	Sample Method	T.D. Borehole	Well Installed?
24" OD Solid Auger	Grab from Auger	22'	None Installed

Remarks:

Depth (ft)	Sample ID #	Geiger Reading (mR/hr)	Description
5	WL-108 5'	Background (0.02-0.04)	0.0-22.0' Landfill Debris: trashy debris consisting of wood, plastic, paper, rubber, metal, and cardboard; soil consisting of olive brown to dark gray silt, and rock; dry to wet.
10	None Taken	None Taken	
15	None Taken	None Taken	@ 12' wet
20	None Taken	None Taken	
25	None Taken	None Taken	Boring abandoned @ 22.0'

Notes:

Radiological sample collected at 5 feet below ground surface.
Non-radiological grab sample collected from perched water.
Perched water encountered at 12 feet below ground surface.
Groundwater not encountered during boring activities

Soil Boring Log

McLaren Hart

Boring No.	Project No./Name	Page:
WL-109B	07.0803035.003.002	1 of 2

Start/Finish Date	Site Name and Location
9/7/95 / 10/24/95	West Lake Landfill; Bridgeton, Missouri

Drilling Contractor	Boring Location:	Area 1
Hart Environmental Drilling	Ground Surface Elevation:	484.5
Drilling Service Company	Northing:	1068947.16
Driller	Easting:	516523.17
Max Tinnin	McLaren/Hart Geologist/Office	
Bruce Murphy	Tim Biggs / St. Louis	

Drilling Equipment
CME-55 Drill Rig, Hollow Stem Augers
LDH-80T Drill Rig, Large Diameter Auger

Bit Size/Type	Sample Method	T.D. Borehole	Well Installed?
4 1/4" ID 8 1/4" Hole 24" OD Solid Auger	Continuous Sampler Grab from Auger	59'	D-14

Remarks:

Depth (ft)	Sample ID #	Geiger Reading (mR/hr)	Description
5	None Taken	None Taken	0.0-49.0' Landfill Debris: trashy debris consisting of wood, plastic, brick, paper, wire, rubber, metal, yard waste, and carpeting; soil consisting of olive brown to dark gray silt, gray to black silty clay, and crushed rock; dry to moist; warm.
10	None Taken	None Taken	
15	None Taken	None Taken	
20	None Taken	None Taken	
25	None Taken	None Taken	
30	None Taken	None Taken	
35	None Taken	None Taken	
40	None Taken	None Taken	
45	None Taken	None Taken	@ 45.0' sample had temperature of 116° F

Soil Boring Log

McLaren Hart

Boring No.	Project No./Name	Page:
WL-109B	07.0803035.003.002	2 of 2

Start/Finish Date	Site Name and Location
10/24/95	West Lake Landfill; Bridgeton, Missouri

Drilling Contractor	Boring Location:	Area 1
Hart Environmental Drilling	Ground Surface Elevation:	484.5
Drilling Service Company	Northing:	1068947.16
Driller	Easting:	516523.17
Max Timmin	McLaren/Hart Geologist/Office	
Bruce Murphy	Tim Biggs / St. Louis	

Drilling Equipment

CME-55 Drill Rig, Hollow Stem Augers

LDH-80T Drill Rig, Large Diameter Auger

Bit Size/Type	Sample Method	T.D. Borehole	Well Installed?
4 1/4" ID 8 1/4" Hole	Continuous Sampler	59'	D-14
24" OD Solid Auger	Grab from Auger		

Remarks:

Depth (ft)	Sample ID #	Geiger Reading (mR/hr)	Description
50	None Taken	None Taken	49.0-59.0' Native Alluvium: dark gray, clayey and silty, very fine-grained sand; moist; warm.
55	None Taken	None Taken	
60	WL-109B 59'	None Taken	Auger refusal @ 59.0' (bedrock)

Notes:

Radiological samples not collected during boring activities.

Non-radiological samples not collected during boring activities.

Perched water not encountered during boring activities.

Groundwater not encountered during boring activities.

Soil Boring Log

McLaren Hart

Boring No.	Project No./Name	Page:
WL-109C	07.0803035.003.002	1 of 2

Start/Finish Date	Site Name and Location
9/12/95	West Lake Landfill; Bridgeton, Missouri

Drilling Contractor	Boring Location:	Area 1
Drilling Service Company	Ground Surface Elevation:	483.9
Driller	Northing:	1068961.12
Bruce Murphy	Easting:	516528.43

Drilling Equipment	McLaren/Hart Geologist/Office
LDH-80T Drilling Rig, Large Diameter Auger	Tim Biggs / St. Louis

Bit Size/Type	Sample Method	T.D. Borehole	Well Installed?
24" OD, Solid Auger	Grab	57'	None Installed

Remarks:

Depth (ft)	Sample ID #	Geiger Reading (mR/hr)	Description
5	None Taken	Background (0.02-0.04)	0.0-48.0' Landfill Debris: trashy debris consisting of wood, plastic, brick, paper, wire, metal, yard waste, and carpeting; soil consisting of olive brown to dark gray silt, gray to black silty clay, and crushed rock; dry to moist; warm.
10	None Taken	Background (0.02-0.04)	
15	None Taken	Background (0.02-0.04)	
20	None Taken	Background (0.02-0.04)	
25	None Taken	Background (0.02-0.04)	
30	None Taken	Background (0.02-0.04)	
35	None Taken	Background (0.02-0.04)	
40	None Taken	Background (0.02-0.04)	
45	None Taken	Background (0.02-0.04)	

Soil Boring Log

McLaren Hart

Boring No.	Project No./Name	Page:
WL-109D	07.0803035.003.002	1 of 2

Start/Finish Date	Site Name and Location
10/23/95	West Lake Landfill; Bridgeton, Missouri

Drilling Contractor	Boring Location:	Area 1
Hart Environmental Drilling	Ground Surface Elevation:	485.6
Drilling Service Company	Northing:	1068947.38
Driller	Easting:	516504.97
Max Tinnin	McLaren/Hart Geologist/Office	
Bruce Murphy	Tim Biggs / St. Louis	

Drilling Equipment
CME-55 Drill Rig, Hollow Stem Augers
LDH-80T Drill Rig, Large Diameter Auger

Bit Size/Type	Sample Method	T.D. Borehole	Well Installed?
4 1/4" ID 8 1/4" Hole 24" OD Solid Auger	Continuous Sampler Grab from Auger	59'	D-14

Remarks:

Depth (ft)	Sample ID #	Geiger Reading (mR/hr)	Description
5	WL-109D 5'	Background (0.02-0.04)	0.0-56.0' Landfill Debris: trashy debris consisting of wood, plastic, brick, shingles, paper, wire, metal, yard waste, and carpeting; soil consisting of olive brown to dark gray silt, gray to black silty clay, green and red weathered shale, and crushed rock; dry to moist; warm.
10	WL-109D 10'	Background (0.02-0.04)	
15	WL-109D 15'	Background (0.02-0.04)	
20	WL-109D 20'	Background (0.02-0.04)	
25	WL-109D 25'	Background (0.02-0.04)	
30	WL-109D 30'	Background (0.02-0.04)	
35	WL-109D 35'	None Taken	
40	WL-109D 40'	Background (0.02-0.04)	
45	WL-109D 45'	Background (0.02-0.04)	
50	WL-109D 50'	Background (0.02-0.04)	
55	WL-109D 55'	Background (0.02-0.04)	

Soil Boring Log

McLaren Hart

Boring No.	Project No./Name	Page:
WL-109D	07.0803035.003.002	2 of 2

Start/Finish Date	Site Name and Location
10/23/95	West Lake Landfill; Bridgeton, Missouri

Drilling Contractor	Boring Location:	Area 1
Hart Environmental Drilling	Ground Surface Elevation:	485.6
Drilling Service Company	Northing:	1068947.38
Driller	Easting:	516504.97
Max Tinnin	**McLaren/Hart Geologist/Office**	
Bruce Murphy	Tim Biggs / St. Louis	

Drilling Equipment

CME-55 Drill Rig, Hollow Stem Augers

LDH-80T Drill Rig, Large Diameter Auger

Bit Size/Type	Sample Method	T.D. Borehole	Well Installed?
4 1/4" ID 8 1/4" Hole 24" OD Solid Auger	Continuous Sampler Grab from Auger	59'	D-14

Remarks:

Depth (ft)	Sample ID #	Geiger Reading (mR/hr)	Description
60	None Taken	Background (0.02-0.04)	56.0-62.0' Native Alluvium: dark gray clayey silt grading to fine-grained sand; moist.
65	None Taken	Background (0.02-0.04)	Auger refusal @ 62.0' (bedrock)

Notes:

Radiological samples not collected during boring activities.

Non-radiological samples not collected during boring activities.

Perched water not encountered during boring activities.

Groundwater not encountered during boring activities.

Soil Boring Log

McLaren Hart

Boring No.	Project No./Name	Page:
WL-110	07.0803035.003.002	1 of 2

Start/Finish Date 9/6/95	**Site Name and Location** West Lake Landfill; Bridgeton, Missouri
Drilling Contractor Drilling Service Company	**Boring Location:** Area 1 **Ground Surface Elevation:** 484.41 (Planned Boring location, not surveyed) **Northing:** 1068889.01 **Easting:** 516645.03
Driller Bruce Murphy	

Drilling Equipment LDH-80T Drilling Rig, Large Diameter Auger	**McLaren/Hart Geologist/Office** Tim Biggs / St. Louis

Bit Size/Type	Sample Method	T.D. Borehole	Well Installed?
24" OD, Solid Auger	Grab from Augers	56'	None Installed

Remarks:

Depth (ft)	Sample ID #	Geiger Reading (mR/hr)	Description
5	WL-110 5'	Background (0.02-0.04)	0.0-50.0' Landfill Debris: trashy debris consisting of wood, plastic, wire, insulation, paper, and metal; soil consisting of olive brown silt, dark gray to grayish brown silty clay, and crushed rock; dry to moist; warm to very warm.
10	WL-110 10'	Background (0.02-0.04)	
15	WL-110 15'	Background (0.02-0.04)	
20	WL-110 20'	Background (0.02-0.04)	
25	WL-110 25'	Background (0.02-0.04)	
30	WL-110 30'	Background (0.02-0.04)	
35	WL-110 35'	Background (0.02-0.04)	
40	WL-110 40'	Background (0.02-0.04)	
45	WL-110 45'	Background (0.02-0.04)	
50	WL-110 50'	Background (0.02-0.04)	

Soil Boring Log

McLaren Hart

Boring No.	Project No./Name	Page:
WL-110	07.0803035.003.002	2 of 2

Start/Finish Date	Site Name and Location
9/6/95	West Lake Landfill; Bridgeton, Missouri

Drilling Contractor	Boring Location:	Area 1
Drilling Service Company	Ground Surface Elevation:	484.41 (Planned Boring
Driller	Northing:	1068889.01 location, not
Bruce Murphy	Easting:	516645.03 surveyed)

Drilling Equipment	McLaren/Hart Geologist/Office
LDH-80T Drilling Rig, Large Diameter Auger	Tim Biggs / St. Louis

Bit Size/Type	Sample Method	T.D. Borehole	Well Installed?
24" OD, Solid Auger	Grab from Augers	56'	None Installed

Remarks:

Depth (ft)	Sample ID #	Geiger Reading (mR/hr)	Description
55	WL-110 55'	Background (0.02-0.04)	50.0-56.0' Native Alluvium: dark gray, clayey silt; moist; very warm.
60	WL-110 56'	Background (0.02-0.04)	@ 56.0' sample had a temperature of 140° F Boring terminated at 56.0'

Notes:

Radiological samples collected from 5 and 50 feet below ground surface.

Non-radiological samples not collected during boring activities.

Perched water not encountered during boring activities.

Groundwater not encountered during boring activities.

Soil Boring Log

McLaren Hart

Boring No.	Project No./Name	Page:
WL-111	07.0803035.003.002	1 of 1

Start/Finish Date	Site Name and Location
9/11/95	West Lake Landfill; Bridgeton, Missouri

Drilling Contractor	Boring Location:	Area 1
Drilling Service Company	Ground Surface Elevation:	474.5
Driller	Northing:	1069187.35
Bruce Murphy	Easting:	516583.61

Drilling Equipment	McLaren/Hart Geologist/Office
LDH-80T Drill Rig, Large Diameter Auger	Tim Biggs / St. Louis

Bit Size/Type	Sample Method	T.D. Borehole	Well Installed?
24" OD Solid Auger	Grab from Augers	52'	None Installed

Remarks:

Depth (ft)	Sample ID #	Geiger Reading (uR/hr)	Description
5	WL-111 5'	Background (0.02-0.04)	0.0-50.0' Landfill Debris: trashy debris consisting of wood, plastic, cloth, brick, rubber, paper, wire, glass, and metal; soil consisting of olive brown to gray silt, dark gray to grayish brown silty clay, and crushed rock; dry to wet.
10	WL-111 10'	Background (0.02-0.04)	
15	WL-111 15'	Background (0.02-0.04)	
20	WL-111 20'	Background (0.02-0.04)	
25	WL-111 25'	Background (0.02-0.04)	
30	WL-111 30'	Background (0.02-0.04)	
35	WL-111 35'	Background (0.02-0.04)	
40	WL-111 40'	Background (0.02-0.04)	
45	WL-111 45'	Background (0.02-0.04)	@ 45' wet
50	WL-111 50'	Background (0.02-0.04)	
55	WL-111 51'	Background (0.02-0.04)	50.0-52.0' Native Alluvium: dark gray, silty, very fine-grained sand; wet. Boring terminated @ 52.0'.

Notes:

Radiological samples collected at 5 and 51 feet below ground surface.

Non-radiological samples not collected during boring activities.

Perched water not encountered during boring activities.

Groundwater encountered at 45 feet below ground surface.

Soil Boring Log

McLaren Hart

Boring No.	Project No./Name	Page:
WL-112	07.0803035.003.002	1 of 1

Start/Finish Date	Site Name and Location
9/11/95	West Lake Landfill; Bridgeton, Missouri

Drilling Contractor	Boring Location:	Area 1
Drilling Service Company	Ground Surface Elevation:	467.6
Driller	Northing:	1069379.45
Bruce Murphy	Easting:	516628.22

Drilling Equipment	McLaren/Hart Geologist/Office
LDH-80T Drill Rig, Large Diameter Auger	Tim Biggs / St. Louis

Bit Size/Type	Sample Method	T.D. Borehole	Well Installed?
24" OD Solid Auger	Grab from Augers	42'	None Installed

Remarks:

Depth (ft)	Sample ID #	Geiger Reading (mR/hr)	Description
5	WL-112 5'	Background (0.02-0.04)	0.0-38.0' Landfill Debris: trashy debris consisting of yard waste, wood, plastic, cloth, paper, wire, and metal; soil consisting of grayish brown to dark gray silt, dark gray to grayish brown clayey silt, and very fine-grained sand; dry to wet.
10	None Taken	None Taken	
15	WL-112 15'	Background (0.02-0.04)	
20	WL-112 20'	Background (0.02-0.04)	
25	WL-112 25'	Background (0.02-0.04)	
30	WL-112 30'	Background (0.02-0.04)	
35	WL-112 35'	Background (0.02-0.04)	@ 34' wet
40	None Taken	None Taken	38.0-42.0' Native Alluvium: dark gray silty clay grading to very fine-grained sand; moist to wet.
45	None Taken	None Taken	Boring terminated @ 42.0'

Notes:

Radiological samples collected at 5 and 42 feet below ground surface.

Non-radiological samples not collected during boring activities.

Perched water not encountered during boring activities.

Groundwater encountered at 34 feet below ground surface.

Soil Boring Log

McLaren Hart

Boring No.	Project No./Name	Page:
WL-113	07.0803035.003.002	1 of 1

Start/Finish Date	Site Name and Location
9/25/95	West Lake Landfill; Bridgeton, Missouri

Drilling Contractor	Boring Location:	Area 1
Drilling Service Company	Ground Surface Elevation:	467
Driller	Northing:	1069483.19
Bruce Murphy	Easting:	516469.95

Drilling Equipment	McLaren/Hart Geologist/Office
LDH-80T Drill Rig, Large Diameter Auger	Tim Biggs / St. Louis

Bit Size/Type	Sample Method	T.D. Borehole	Well Installed?
24" OD Solid Auger	Grab from Auger	45'	None Installed

Remarks:

Depth (ft)	Sample ID #	Geiger Reading (mR/hr)	Description
5	WL-113 5'	Background (0.01-0.04)	0.0–42.5' Landfill Debris: trashy debris consisting of yard waste, wood, plastic, cloth, paper, wire, and metal; soil consisting of dark gray to grayish brown silty clay and very fine to medium-grained sand; dry to wet.
10	WL-113 10'	Background (0.01-0.04)	
15	WL-113 15'	Background (0.01-0.04)	
20	WL-113 20'	Background (0.01-0.04)	
25	None Taken	Background (0.01-0.04)	
30	None Taken	Background (0.01-0.04)	
35	WL-113 35'	Background (0.01-0.04)	
40	None Taken	Background (0.01-0.04)	
			@ 41' wet
45	None Taken	Background (0.01-0.04)	42.5-45.0' Native Alluvium: dark gray silty clay grading to very fine-grained sand; wet. Boring terminated @ 45.0'.

Notes:

Radiological samples collected at 5 and 10 feet below ground surface; duplicate collected and analyzed for 5' sample; downhole logging indicated elevated gamma readings from 3.5 -4.0'.

Non-radiological samples collected at 45 feet below ground surface; priority pollutant sample collected and analyzed.

Perched water not encountered during boring activities.

Groundwater encountered at 41 feet below ground surface.

Soil Boring Log

McLaren Hart

Boring No.	Project No./Name	Page:
WL-114	07.0803035.003.002	1 of 1

Start/Finish Date	Site Name and Location
9/25/95	West Lake Landfill; Bridgeton, Missouri

Drilling Contractor	Boring Location:	Area 1
Drilling Service Company	Ground Surface Elevation:	468.3
Driller	Northing:	1069391.53
Bruce Murphy	Easting:	516338.57

Drilling Equipment	McLaren/Hart Geologist/Office
LDH-80T Drill Rig, Large Diameter Auger	Tim Biggs / St. Louis

Bit Size/Type	Sample Method	T.D. Borehole	Well Installed?
24" OD Solid Auger	Grab from Augers	45'	None Installed

Remarks:

Depth (ft)	Sample ID #	Geiger Reading (mR/hr)	Description
5	WL-114 5'	Background (0.01-0.05)	0.0–40.0' Landfill Debris: trashy debris consisting of yard waste, wood, plastic, cloth, paper, insulation, wire, and metal; soil consisting of dark gray to grayish brown clayey silt and very fine to medium-grained sand; dry to moist.
10	None Taken	Background (0.01-0.05)	
15	WL-114 15'	Background (0.01-0.05)	
20	WL-114 20'	Background (0.01-0.05)	
25	WL-114 25'	Background (0.01-0.05)	
30	WL-114 30'	Background (0.01-0.05)	
35	WL-114 35'	Background (0.01-0.05)	
40	WL-114 40'	Background (0.01-0.05)	
45	None Taken	Background (0.01-0.05)	40.0–45.0' Native Alluvium: dark gray, silty, fine to medium-grained sand; wet. Boring terminated @ 45.0'.

Notes:

Radiological samples collected at 5 and 15 feet below ground surface; downhole logging indicated elevated gamma readings from 4.0-5.0'.

Non-radiological samples not collected during boring activities.

Perched water not encountered during boring activities.

Groundwater encountered at 41 feet below ground surface.

Soil Boring Log

McLaren Hart

Boring No.	Project No./Name	Page:
WL-115	07.0803035.003.002	1 of 1

Start/Finish Date	Site Name and Location	
9/26/95	West Lake Landfill; Bridgeton, Missouri	
Drilling Contractor	**Boring Location:**	Area 1
Drilling Service Company	**Ground Surface Elevation:**	468.9
Driller	**Northing:**	1069298.98
Bruce Murphy	**Easting:**	516395.13

Drilling Equipment	McLaren/Hart Geologist/Office
LDH-80T Drill Rig, Large Diameter Auger	Tim Biggs / St. Louis

Bit Size/Type	Sample Method	T.D. Borehole	Well Installed?
24" OD Solid Auger	Grab from Augers	41'	None Installed

Remarks:

Depth (ft)	Sample ID #	Geiger Reading (mR/hr)	Description
5	WL-115 5'	Background (0.01-0.04)	0.0-34.0' Landfill Debris: trashy debris consisting of yard waste, rubber, wood, plastic, cloth, paper, insulation, wire, and metal; soil consisting of dark gray to grayish brown clayey silt and silty sand; dry to moist.
10	WL-115 10'	Background (0.01-0.04)	
15	WL-115 15'	Background (0.01-0.04)	
20	None Taken	Background (0.01-0.04)	
25	WL-115 25'	Background (0.01-0.04)	
30	None Taken	Background (0.01-0.04)	
35	WL-115 35'	Background (0.01-0.04)	34.0-41.0' Native Alluvium: dark gray, silty, fine to medium-grained sand; moist to wet.
40	WL-115 40'	Background (0.01-0.04)	@ 40' wet
45	None Taken	None Taken	Boring terminated @ 41.0'

Notes:

Radiological samples collected at 5 and 40 feet below ground surface.

Non-radiological samples collected at 5 and 38 feet below ground surface; contingency sampling.

Perched water not encountered during boring activities.

Groundwater encountered at 40 feet below ground surface.

Soil Boring Log

McLaren Hart

Boring No.	Project No./Name	Page:
WL-116	07.0803035.003.002	1 of 1

Start/Finish Date	Site Name and Location
9/26/95	West Lake Landfill; Bridgeton, Missouri

Drilling Contractor	Boring Location:	Area 1
Drilling Service Company	Ground Surface Elevation:	474.3
Driller	Northing:	1069083.49
Bruce Murphy	Easting:	516160.60

Drilling Equipment	McLaren/Hart Geologist/Office
LDH-80T Drill Rig, Large Diameter Auger	Tim Biggs / St. Louis

Bit Size/Type	Sample Method	T.D. Borehole	Well Installed?
24" OD Solid Auger	Grab from Augers	20'	None Installed

Remarks:

Depth (ft)	Sample ID #	Geiger Reading (mR/hr)	Description
5	WL-116 5'	Background (0.01-0.04)	0.0-20.0' Landfill Debris: trashy debris consisting of yard waste, wood, plastic, cloth, paper, and metal; soil consisting of dark gray silty clay; dry to wet.
10	WL-116 10'	Background (0.01-0.04)	@ 8' wet
15	None Taken	Background (0.01-0.04)	
20	None Taken	None Taken	Boring abandoned @ 20.0'

Notes:

Radiological samples collected at 5 and 10 feet below ground surface; duplicate collected and analyzed for 5' sample.

Non-radiological samples not collected during boring activities.

Perched water encountered at 8 feet below ground sruface.

Groundwater not encountered during boring activities.

Soil Boring Log

McLaren Hart

Boring No.	Project No./Name	Page:
WL-117	07.0803035.003.002	1 of 1

Start/Finish Date	Site Name and Location
9/27/95	West Lake Landfill; Bridgeton, Missouri

Drilling Contractor	Boring Location:	Area 1
Drilling Service Company	Ground Surface Elevation:	467.6
Driller	Northing:	1069237.40
Bruce Murphy	Easting:	516221.33

Drilling Equipment	McLaren/Hart Geologist/Office
LDH-80T Drill Rig, Large Diameter Auger	Tim Biggs / St. Louis

Bit Size/Type	Sample Method	T.D. Borehole	Well Installed?
24" OD Solid Auger	Grab from Augers	41'	None Installed

Remarks:

Depth (ft)	Sample ID #	Geiger Reading (mR/hr)	Description
5	WL-117 5'	Background (0.01-0.04)	0.0-37.0' Landfill Debris: trashy debris consisting of yard waste, wood, wire, insulation, plastic, cloth, paper, and metal; soil consisting of dark gray silty clay; dry to wet.
10	WL-117 10'	Background (0.01-0.04)	
15	WL-117 15'	Background (0.01-0.04)	
20	None Taken	Background (0.01-0.04)	
25	WL-117 25'	Background (0.01-0.04)	
30	WL-117 30'	Background (0.01-0.04)	
35	WL-117 35'	Background (0.01-0.04)	
40	WL-117 40'	Background (0.01-0.04)	37.0-41.0' Native Alluvium: dark gray, silty, fine to medium-grained sand; moist to wet.
45	None Taken	None Taken	@ 40' wet Boring terminated @ 41.0'

Notes:

Radiological samples collected at 10 and 25 feet below ground surface; downhole logging indicated elevated gamma readings from 6.0-7.0'.

Non-radiological samples not collected during boring activities.

Perched water not encountered during boring activities.

Groundwater encountered at 40 feet below ground surface.

Soil Boring Log

McLaren Hart

Boring No.	Project No./Name	Page:
WL-118	07.0803035.003.002	1 of 1

Start/Finish Date	Site Name and Location
9/28/95	West Lake Landfill; Bridgeton, Missouri

Drilling Contractor	Boring Location:	Area 1
Drilling Service Company	Ground Surface Elevation:	465.8
Driller	**Northing:**	1069411.09
Bruce Murphy	**Easting:**	516304.95

Drilling Equipment	McLaren/Hart Geologist/Office
LDH-80T Drill Rig, Large Diameter Auger	Tim Biggs / St. Louis

Bit Size/Type	Sample Method	T.D. Borehole	Well Installed?
24" OD Solid Auger	Grab from Augers	15'	None Installed

Remarks:

Depth (ft)	Sample ID #	Geiger Reading (mR/hr)	Description
5	WL-118 5'	Background (0.01-0.04)	0.0-15.0' Landfill Debris: trashy debris consisting of plastic, cloth, paper, glass, and metal; soil consisting of light brown to dark gray, silty, plastic clay; dry to moist.
10	WL-118 10'	Background (0.01-0.04)	
15	WL-118 15'	Background (0.01-0.04)	Boring terminated @ 15.0'

Notes:

Radiological samples collected at 5 and 10 feet below ground surface.

Non-radiological samples not collected during boring activities.

Perched water not encountered during boring activities.

Groundwater not encountered during boring activities.

Soil Boring Log

McLaren Hart

Boring No.	Project No./Name	Page:
WL-119	07.0803035.003.002	1 of 1

Start/Finish Date	**Site Name and Location**
9/29/95	West Lake Landfill; Bridgeton, Missouri
Drilling Contractor	**Boring Location:** Area 1
Drilling Service Company	**Ground Surface Elevation:** 477.4
Driller	**Northing:** 1069031.14
Bruce Murphy	**Easting:** 516289.26

Drilling Equipment	**McLaren/Hart Geologist/Office**
LDH-80T Drill Rig, Large Diameter Auger	Tim Biggs / St. Louis

Bit Size/Type	Sample Method	T.D. Borehole	Well Installed?
24" OD Solid Auger	Grab from Augers	50'	None Installed

Remarks:

Depth (ft)	Sample ID #	Geiger Reading (mR/hr)	Description
5	WL-119 5'	Background (0.01-0.04)	0.0-44.0' Landfill Debris: trashy debris consisting of yard waste, insulation, wire, wood, plastic, shingles, cloth, carpet, paper, glass, and metal; soil consisting of light brown to dark gray, silty, plastic clay to sandy silt; dry to moist.
10	None Taken	Background (0.01-0.04)	
15	WL-119 15'	Background (0.01-0.04)	
20	None Taken	Background (0.01-0.04)	
25	WL-119 25'	Background (0.01-0.04)	
30	None Taken	Background (0.01-0.04)	
35	None Taken	Background (0.01-0.04)	
40	None Taken	Background (0.01-0.04)	
45	WL-119 45'	Background (0.01-0.04)	44.0-50.0' Native Alluvium: dark gray, silty, fine to medium-grained sand; moist.
50	WL-119 50'	Background (0.01-0.04)	Boring terminated @ 50.0'

Notes:

Radiological samples collected at 5 and 50 feet below ground surface; duplicate collected and analyzed for 50' sample.

Non-radiological samples collected at 50 feet below ground surface; priority pollutant and priority pollutant duplicate sample collected and analyzed.

Perched water not encountered during boring activities.

Groundwater not encountered during boring activities.

Soil Boring Log

McLaren Hart

Boring No.	Project No./Name	Page:
WL-120	07.0803035.003.002	1 of 1

Start/Finish Date	Site Name and Location
9/29/95	West Lake Landfill; Bridgeton, Missouri

Drilling Contractor	Boring Location:	Area 1
Drilling Service Company	Ground Surface Elevation:	474.7
Driller	Northing:	1069053.64
Bruce Murphy	Easting:	516846.57

Drilling Equipment	McLaren/Hart Geologist/Office
LDH-80T Drill Rig, Large Diameter Auger	Tim Biggs / St. Louis

Bit Size/Type	Sample Method	T.D. Borehole	Well Installed?
24" OD Solid Auger	Grab from Augers	52'	None Installed

Remarks:

Depth (ft)	Sample ID #	Geiger Reading (mR/hr)	Description
5	WL-120 5'	Background (0.01-0.04)	0.0-52.0' Landfill Debris: trashy debris consisting of yard waste, insulation, rubber, wire, wood, plastic, shingles, cloth, carpet, paper, glass, and metal; soil consisting of light brown to dark gray, silty, plastic clay to silty sand; dry to wet.
10	None Taken	Background (0.01-0.04)	
15	None Taken	Background (0.01-0.04)	
20	WL-120 20'	Background (0.01-0.04)	
25	WL-120 25'	Background (0.01-0.04)	
30	None Taken	Background (0.01-0.04)	
35	None Taken	Background (0.01-0.04)	
40	None Taken	Background (0.01-0.04)	
45	None Taken	Background (0.01-0.04)	
50	WL-120 50'	Background (0.01-0.04)	
55	None Taken	Background (0.01-0.04)	Boring terminated @ 52.0'

Notes:

Radiological samples collected at 5 and 50 feet below ground surface; duplicate collected and analyzed for 50' sample.

Non-radiological samples not collected during boring activities.

Perched water not encountered during boring activities.

Goundwater not encountered during boring activities.

Area 2 Boring Logs

Soil Boring Log

McLaren Hart

Boring No.	Project No./Name	Page:
WL-201	07.0803035.003.002	1 of 1

Start/Finish Date	Site Name and Location
7/31/95	West Lake Landfill; Bridgeton, Missouri

Drilling Contractor	Boring Location:	Area 2
Hart Environmental Drilling	Ground Surface Elevation:	444
Driller	**Northing:**	1070378.84
Max Tinnin	**Easting:**	514177.60

Drilling Equipment	McLaren/Hart Geologist/Office
CME-55 Drill Rig, Hollow Stem Augers	Tim Biggs / St. Louis

Bit Size/Type	Sample Method	T.D. Borehole	Well Installed?
4 1/4" ID; 8 1/4" Hole	5' Continuous Sampler	15'	None Installed

Remarks:

Depth (ft)	Sample ID #	Geiger Reading (mR/hr)	Description
5	WL-201 5'	Background (0.05-0.07)	0.0-15.0' Native Alluvium: olive brown silt and alternating layers of very fine-grained sand and slightly clayey silt grading to fine to medium-grained sand; dry to wet @ 8' wet
10	WL-201 10'	Background (0.05-0.07)	
15	WL-201 15'	Background (0.05-0.07)	Boring terminated @ 15.0'

Notes:

Radiological samples collected at 5 and 15 feet below ground surface.

Non-radiological samples not collected during boring activities.

Perched water not encountered during boring activities.

Groundwater encountered at 8 feet below ground surface.

Soil Boring Log

McLaren Hart

Boring No.	Project No./Name	Page:
WL-202	07.0803035.003.002	1 of 1

Start/Finish Date	Site Name and Location
7/31/95	West Lake Landfill; Bridgeton, Missouri

Drilling Contractor	Boring Location:	Area 2
Hart Environmental Drilling	Ground Surface Elevation:	444.9
Driller	Northing:	1070102.59
Max Tinnin	Easting:	514488.27

Drilling Equipment	McLaren/Hart Geologist/Office
CME-55 Drill Rig, Hollow Stem Augers	Tim Biggs / St. Louis

Bit Size/Type	Sample Method	T.D. Borehole	Well Installed?
4 1/4" ID; 8 1/4" Hole	5' Continuous Sampler	15'	None Installed

Remarks:

Depth (ft)	Sample ID #	Geiger Reading (mR/hr)	Description
5	WL-202 5'	Background (0.05-0.07)	0.0-15.0' Native Alluvium: light to dark brown silt grading to fine grained sand; dry to wet
10	WL-202 10'	Background (0.05-0.07)	@ 10' wet
15	WL-202 15'	Background (0.05-0.07)	Boring terminated @ 15.0'

Notes:

Radiological samples collected at 5 and 15 feet below ground surface.

Non-radiological samples not collected during boring activities.

Perched water not encountered during boring activities.

Groundwater encountered at 10 feet below ground surface.

Soil Boring Log

McLaren Hart

Boring No.	Project No./Name	Page:
WL-203	07.0803035.003.002	1 of 1

Start/Finish Date	**Site Name and Location**
7/31/95	West Lake Landfill; Bridgeton, Missouri
Drilling Contractor	**Boring Location:** Area 2
Hart Environmental Drilling	**Ground Surface Elevation:** 444.7
Driller	**Northing:** 1069934.54
Max Tinnin	**Easting:** 514237.48

Drilling Equipment	**McLaren/Hart Geologist/Office**
CME-55 Drill Rig, Hollow Stem Augers	Tim Biggs / St. Louis

Bit Size/Type	Sample Method	T.D. Borehole	Well Installed?
4 1/4" ID; 8 1/4" Hole	5' Continuous Sampler	15'	None Installed

Remarks:

Depth (ft)	Sample ID #	Geiger Reading (mR/hr)	Description
5	WL-203 5'	Background (0.05-0.07)	0.0-15.0' Native Alluvium: dark brwon to silt grading to light brown, fine-grained sand; dry to wet.
10	WL-203 10'	Background (0.05-0.07)	
15	WL-203 15'	Background (0.05-0.07)	@ 11' wet Boring terminated @ 15.0'

Notes:

Radiological samples collected at 5 and 15 feet below ground surface.

Non-radiological samples not collected during boring activities.

Perched water not encountered during boring activities.

Groundwater encountered at 11 feet below ground surface.

Soil Boring Log

McLaren Hart

Boring No.	Project No./Name	Page:
WL-204	07.0803035.003.002	1 of 1

Start/Finish Date	Site Name and Location
8/1/95	West Lake Landfill; Bridgeton, Missouri

Drilling Contractor	Boring Location:	Area 2
Hart Environmental Drilling	Ground Surface Elevation:	443.3
Driller	Northing:	1069685.83
Max Tinnin	Easting:	514205.01

Drilling Equipment	McLaren/Hart Geologist/Office
CME-55 Drill Rig, Hollow Stem Augers	Tim Biggs / St. Louis

Bit Size/Type	Sample Method	T.D. Borehole	Well Installed?
4 1/4" ID; 8 1/4" Hole	5' Continuous Sampler	25'	S-1

Remarks:

Depth (ft)	Sample ID #	Geiger Reading (mR/hr)	Description
5	WL-204 5'	Background (0.03-0.05)	0.0-25.0' Native Alluvium: olive brown clayey silt grading to dark brown, fine-grained sand; moist to wet.
10	WL-204 10'	Background (0.03-0.05)	@ 8' wet
15	WL-204 15'	Background (0.03-0.05)	
20	WL-204 20'	Background (0.03-0.05)	
25	WL-204 25'	Background (0.03-0.05)	Boring terminated @ 25.0'

Notes:

Radiological samples collected at 5 and 25 feet below ground surface.

Non-radiological samples not collected during boring activities.

Perched water not encountered during boring activities.

Groundwater encountered at 8 feet below ground surface.

Soil Boring Log

McLaren Hart

Boring No.	Project No./Name	Page:
WL-205	07.0803035.003.002	1 of 1

Start/Finish Date	Site Name and Location
8/1/95 / 8/3/95	West Lake Landfill; Bridgeton, Missouri

Drilling Contractor	Boring Location:	Area 2
Hart Environmental Drilling	Ground Surface Elevation:	443.2
Driller	Northing:	1069698.26
Max Tinnin	Easting:	514212.18

Drilling Equipment	McLaren/Hart Geologist/Office
CME-55 Drill Rig, Hollow Stem Augers	Tim Biggs / St. Louis

Bit Size/Type	Sample Method	T.D. Borehole	Well Installed?
4 1/4" ID; 8 1/4" Hole	5' Continuous Sampler	52'	I-2

Remarks:

Depth (ft)	Sample ID #	Geiger Reading (mR/hr)	Description
5	WL-205 5'	Background (0.05-0.07)	0.0-52.0' Native Alluvium: olive brown silty clay grading to grayish brown, coarse-grained sand with gravel; dry to wet.
10	WL-205 10'	Background (0.05-0.07)	@ 8' wet
15	WL-205 15'	Background (0.05-0.07)	
20	WL-205 20'	Background (0.05-0.07)	
25	WL-205 25'	Background (0.05-0.07)	
30	None Taken	Background (0.05-0.07)	
35	WL-205 32'	Background (0.05-0.07)	
40	WL-205 37'	Background (0.05-0.07)	
45	WL-205 42'	Background (0.05-0.07)	
50	WL-205 47'	Background (0.05-0.07)	
55	WL-205 52'	Background (0.05-0.07)	Boring terminated @ 52.0'

Notes:

Radiological samples collected at 5 and 15 feet below ground surface.

Non-radiological samples not collected.

Perched water not encountered during boring activities.

Groundwater encountered at 8 feet below ground surface.

Soil Boring Log

McLaren Hart

Boring No.	Project No./Name	Page:
WL-206	07.0803035.003.002	1 of 2

Start/Finish Date	Site Name and Location
8/16/95	West Lake Landfill; Bridgeton, Missouri

Drilling Contractor	Boring Location:	Area 2
Hart Environmental Drilling	Ground Surface Elevation:	444.4
Driller	Northing:	1070194.31
Max Tinnin	Easting:	514549.50

Drilling Equipment	McLaren/Hart Geologist/Office
CME-55 Drill Rig, Hollow Stem Augers	Tim Biggs / St. Louis

Bit Size/Type	Sample Method	T.D. Borehole	Well Installed?
4 1/4" ID; 8 1/4" Hole	5' Continuous Sampler	109'	D-6

Remarks:

Depth (ft)	Sample ID #	Geiger Reading (mR/hr)	Description
5	WL-206 5'	Background (0.02-0.04)	0.0-65.0' Native Alluvium: olive brown clayey silt grading to grayish brown, coarse-grained sand and gravel; dry to wet.
10	WL-206 10'	Background (0.02-0.04)	
15	WL-206 15'	Background (0.02-0.04)	@ 11' wet
20	None Taken	None Taken	
25	None Taken	None Taken	
30	None Taken	None Taken	
35	None Taken	None Taken	
40	None Taken	None Taken	
45	None Taken	None Taken	
50	None Taken	None Taken	
55	None Taken	None Taken	
60	None Taken	None Taken	
65	None Taken	None Taken	

Soil Boring Log

McLaren Hart

Boring No.	Project No./Name	Page:
WL-206	07.0803035.003.002	2 of 2

Start/Finish Date	Site Name and Location
8/16/95	West Lake Landfill; Bridgeton, Missouri
Drilling Contractor	**Boring Location:** Area 2
Hart Environmental Drilling	**Ground Surface Elevation:** 444.4
Driller	**Northing:** 1070194.31
Max Tinnin	**Easting:** 514549.50

Drilling Equipment	McLaren/Hart Geologist/Office
CME-55 Drill Rig, Hollow Stem Augers	Tim Biggs / St. Louis

Bit Size/Type	Sample Method	T.D. Borehole	Well Installed?
4 1/4" ID; 8 1/4" Hole	5' Continuous Sampler	109'	D-6

Remarks:

Depth (ft)	Sample ID #	Geiger Reading (mR/hr)	Description
70	None Taken	None Taken	65.0-109.0' Native Alluvium: olive brown clayey silt grading to grayish brown, coarse-grained sand and gravel; dry to wet.
75	None Taken	None Taken	
80	None Taken	None Taken	
85	None Taken	None Taken	
90	None Taken	None Taken	
95	None Taken	None Taken	
100	None Taken	None Taken	
105	None Taken	None Taken	
110	None Taken	None Taken	Auger refusal @ 109.0' (bedrock)

Notes:

Radiological samples collected at 5 and 10 feet below ground surface.

Non-radiological samples not collected during boring activities.

Perched water not encountered during boring activities.

Groundwater encountered at 11 feet below ground surface.

Soil Boring Log

McLaren Hart

Boring No.	Project No./Name	Page:
WL-207	07.0803035.003.002	1 of 1

Start/Finish Date	Site Name and Location
8/18/95	West Lake Landfill; Bridgeton, Missouri
Drilling Contractor	**Boring Location:** Area 2
Hart Environmental Drilling	**Ground Surface Elevation:** 444.5
Driller	**Northing:** 1070743.05
Max Tinnin	**Easting:** 514299.87

Drilling Equipment	McLaren/Hart Geologist/Office
CME-55 Drill Rig, Hollow Stem Augers	Tim Biggs / St. Louis

Bit Size/Type	Sample Method	T.D. Borehole	Well Installed?
4 1/4" ID; 8 1/4" Hole	5' Continuous Sampler	50'	I-7

Remarks:

Depth (ft)	Sample ID #	Geiger Reading (mR/hr)	Description
5	WL-207 5'	Background (0.02-0.04)	0.0-50.0' Native Alluvium: slightly clayey, very fine-grained sand grading to gray coarse-grained sand with gravel; dry to wet
10	WL-207 10'	Background (0.02-0.04)	@ 9.5' wet
15	WL-207 15'	Background (0.02-0.04)	
20	WL-207 20'	Background (0.02-0.04)	
25	WL-207 25'	None Taken	
30	WL-207 30'	None Taken	
35	WL-207 35'	None Taken	
40	WL-207 40'	None Taken	
45	WL-207 45'	None Taken	
50	WL-207 50'	None Taken	Boring terminated @ 50.0'

Notes:

Radiological samples collected at 5 and 10 feet below ground surface.

Non-radiological samples not collected during boring activities.

Perched water not encountered during boring activities.

Groundwater encountered at 9.5 feet below ground surface.

Soil Boring Log

McLaren Hart

Boring No.	Project No./Name	Page:
WL-208	07.0803035.003.002	1 of 1

Start/Finish Date	**Site Name and Location**
8/23/95	West Lake Landfill; Bridgeton, Missouri
Drilling Contractor	**Boring Location:** Area 2
Drilling Service Company	**Ground Surface Elevation:** 474.8
Driller	**Northing:** 1070141.19
Bruce Murphy	**Easting:** 514752.42

Drilling Equipment	**McLaren/Hart Geologist/Office**
LDH-80T Drill Rig, Large Diameter Auger	Tim Biggs / St. Louis

Bit Size/Type	Sample Method	T.D. Borehole	Well Installed?
24" OD Solid Auger	Grab from Augers	37'	None Installed

Remarks:

Depth (ft)	Sample ID #	Geiger Reading (mR/hr)	Description
5	WL-208 5'	Background (0.03-0.05)	0.0-28.0' Landfill Debris: trashy debris consisting of wood, brick, paper, concrete, insulation, metal, plastic, glass, and wire; soil consisting of dark gray silty clay to medium-grained sand, and rock; dry to moist.
10	WL-208 10'	Background (0.03-0.05)	
15	WL-208 15'	Background (0.03-0.05)	@ 15' soil discolored; petroleum odor; OVM readings greater than 10 X background.
20	WL-208 20'	Background (0.03-0.05)	@ 20' metal container with petroleum odor and residue; OVM readings greater than 10 X background.
25	WL-208 25'	Background (0.03-0.05)	@ 25' OVM readings greater than 10 X backgound.
30	WL-208 30'	Background (0.03-0.05)	28.0-37.0' Native Alluvium: dark gray, slightly sandy, silty plastic clay grading to fine-grained sand; moist
35	WL-208 35'	Background (0.03-0.05)	
40	WL-208 37'	Background (0.03-0.05)	Boring terminated @ 37.0'

Notes:

Radiological samples collected at 5 and 9 feet below ground surface.

Non-radiological samples collected at 15, 20 and 28 feet below ground surface; contingency sampling.

Perched water not encountered during boring activities.

Groundwater not encountered during boring activities.

Soil Boring Log

McLaren Hart

Boring No.	Project No./Name	Page:
WL-209	07.0803035.003.002	1 of 1

Start/Finish Date	**Site Name and Location**
8/24/95	West Lake Landfill; Bridgeton, Missouri
Drilling Contractor	**Boring Location:** Area 2
Drilling Service Company	**Ground Surface Elevation:** 467.4
Driller	**Northing:** 1070492.55
Bruce Murphy	**Easting:** 514686.34

Drilling Equipment	**McLaren/Hart Geologist/Office**
LDH-80T Drill Rig, Large Diameter Auger	Tim Biggs / St. Louis

Bit Size/Type	Sample Method	T.D. Borehole	Well Installed?
24" OD Solid Auger	Grab from Augers	30'	None Installed

Remarks:

Depth (ft)	Sample ID #	Geiger Reading (mR/hr)	Description
5	WL-209 5'	1.0-5.3	0.0-28.0' Landfill Debris: trashy debris consisting of rubber, brick, concrete, insulation, metal, wood, plastic, glass, and wire; soil consisting of dark gray clayey silt to fine-grained sand, and rock; dry to moist.
10	WL-209 10'	0.8-1.3	
15	WL-209 15'	Background (0.05)	
20	WL-209 20'	Background (0.05)	
25	WL-209 25'	Background (0.05)	
30	WL-209 30'	Background (0.05)	28.0-30.0' Native Alluvium: dark gray, fine to medium-grained sand; moist. Boring terminated @ 30.0'

Notes:

Radiological samples collected at 5 and 25 feet below ground surface; duplicates collected and analyzed; downhole logging indicated elevated gamma levels from 0.0-7.0'.

Non-radiological samples not collected during boring activities.

Perched water not encountered during boring activities.

Groundwater not encountered during boring activities.

Soil Boring Log

McLaren Hart

Boring No.	Project No./Name	Page:
WL-210	07.0803035.003.002	1 of 1

Start/Finish Date	Site Name and Location
8/25/95 / 8/28/95	West Lake Landfill; Bridgeton, Missouri

Drilling Contractor	Boring Location:	Area 2
Drilling Service Company	Ground Surface Elevation:	477.8
Driller	Northing:	1069775.15
Bruce Murphy	Easting:	514811.55

Drilling Equipment	McLaren/Hart Geologist/Office
LDH-80T Drill Rig, Large Diameter Auger	Tim Biggs / St. Louis

Bit Size/Type	Sample Method	T.D. Borehole	Well Installed?
24" OD Solid Auger	Grab from Augers	53'	None Installed

Remarks:

Depth (ft)	Sample ID #	Geiger Reading (mR/hr)	Description
5	WL-210 5'	0.2-3.0	0.0-53.0' Landfill Debris: trashy debris consisting of wood, plastic, paper, shredded tires, yard waste, cloth, metal, glass, and wire; soil consisting of dark gray to brown silt and fine-grained sand, and crushed rock; dry to wet.
10	None Taken	Background (0.2)	0-46' OVM readings greater than 10X background.
15	WL-210 15'	Background (0.2)	@ 15' soil discolored; petroleum odor; OVM readings greater than 10 X background.
20	WL-210 20'	Background (0.2)	
25	WL-210 25'	Background (0.2)	
30	WL-210 30'	Background (0.2)	
35	WL-210 35'	Background (0.2)	
40	WL-210 40'	Background (0.2)	
45	None Taken	None Taken	
50	None Taken	None Taken	@ 46' wet
55	None Taken	None Taken	53.0' Native Alluvium: dark gray, slightly sandy, silty, plastic clay; wet. Boring terminated @ 53.0'

Notes:

Radiological samples collected at 5 and 40 feet below ground surface; duplicates collected and analyzed; downhole logging indicated elevated gamma readings from 0.0-13.0'.

Non-radiological samples collected at 15 feet below ground surface; contingency sampling.

Perched water not encountered during boring activities.

Groundwater encountered at 46 feet below ground surface.

Soil Boring Log

McLaren Hart

Boring No.	Project No./Name	Page:
WL-211	07.0803035.003.002	1 of 1

Start/Finish Date	Site Name and Location
8/28/95	West Lake Landfill; Bridgeton, Missouri

Drilling Contractor	Boring Location:	Area 2
Drilling Service Company	Ground Surface Elevation:	475.3
Driller	Northing:	1070046.08
Bruce Murphy	Easting:	514684.07

Drilling Equipment	McLaren/Hart Geologist/Office
LDH-80T Drill Rig, Large Diameter Auger	Tim Biggs / St. Louis

Bit Size/Type	Sample Method	T.D. Borehole	Well Installed?
24" OD Solid Auger	Grab from Augers	28'	None Installed

Remarks:

Depth (ft)	Sample ID #	Geiger Reading (uR/hr)	Description
5	WL-211 5'	Background (0.4)	0.0-25.0' Landfill Debris: trashy debris consisting of wood, plastic, paper, rubber, metal, and concrete; soil consisting of grayish-brown sandy and silty clay to coarse-grained sand; dry to wet.
10	WL-211 10'	Background (0.4)	
15	WL-211 15'	Background (0.4)	@ 5-20' OVM readings greater than 10 X background
20	WL-211 20'	Background (0.4)	
25	WL-211 25'	Background (0.4)	@ 23.5' wet
30	WL-211 30'	Background (0.4)	25.0-28.0' Native Alluvium: grayish brown, fine to coarse-grained sand; wet. Boring terminated @ 28.0'

Notes:

Radiological samples collected at 5 and 25 feet below ground surface; downhole logging indicated elevated gamma readings from 0.0-7.5' and 9.0-10.0'.

Non-radiological samples not collected during boring activities.

Perched water not encountered during boring activities.

Groundwater encountered at 23.5 feet below ground surface.

Soil Boring Log

McLaren Hart

Boring No.	Project No./Name	Page:
WL-212	07.0803035.003.002	1 of 1

Start/Finish Date	**Site Name and Location**
8/28/95	West Lake Landfill; Bridgeton, Missouri
Drilling Contractor	**Boring Location:** Area 2
Drilling Service Company	**Ground Surface Elevation:** 472.9
Driller	**Northing:** 1070025.86
Bruce Murphy	**Easting:** 514973.26

Drilling Equipment	**McLaren/Hart Geologist/Office**
LDH-80T Drill Rig, Large Diameter Auger	Tim Biggs / St. Louis

Bit Size/Type	Sample Method	T.D. Borehole	Well Installed?
24" OD Solid Auger	Grab from Augers	30'	None Installed

Remarks:

Depth (ft)	Sample ID #	Geiger Reading (mR/hr)	Description
5	WL-212 5'	Background (0.03-0.05)	0.0-28.0' Landfill Debris: trashy debris consisting of wood, plastic, brick, paper, rubber, insulation; soil consisting of dark gray silty clay, silt, and very fine-grained sand, and crushed rock; dry to moist.
10	WL-212 10'	Background (0.03-0.05)	
15	WL-212 15'	Background (0.03-0.05)	
20	WL-212 20'	Background (0.03-0.05)	
25	None Taken	Background (0.03-0.05)	
30	WL-212 28'	Background (0.03-0.05)	28.0-30.0' Native Alluvium: dark gray silt grading to very fine grained sand; moist. Boring terminated @ 30.0'

Notes:

Radiological samples collected at 5 and 10 feet below ground surface.

Non-radiological samples not collected during boring activities.

Perched water not encountered during boring activities.

Groundwater not encountered during boring activities.

Soil Boring Log

McLaren Hart

Boring No.	Project No./Name	Page:
WL-213	07.0803035.003.002	1 of 1

Start/Finish Date	Site Name and Location
8/29/95	West Lake Landfill; Bridgeton, Missouri

Drilling Contractor	Boring Location:	Area 2
Drilling Service Company	Ground Surface Elevation:	472.3
Driller	Northing:	1070223.38
Bruce Murphy	Easting:	514947.61

Drilling Equipment	McLaren/Hart Geologist/Office
LDH-80T Drill Rig, Large Diameter Auger	Tim Biggs / St. Louis

Bit Size/Type	Sample Method	T.D. Borehole	Well Installed?
24" OD Solid Auger	Grab from Augers	25'	None Installed

Remarks:

Depth (ft)	Sample ID #	Geiger Reading (uR/hr)	Description
5	WL-213 5'	Background (0.02-0.04)	0.0-24.0' Landfill Debris: trashy debris consisting of wood, plastic, brick, cardoard, paper, wire, rubber, metal; soil consisting of dark gray silty clay and black, sandy, clayey silt to dark gray, silty very fine-grained sand and crushed rock; dry to moist.
10	WL-213 10'	Background (0.02-0.04)	
15	WL-213 15'	Background (0.02-0.04)	
20	None Taken	None Taken	
25	WL-213 25'	Background (0.02-0.04)	24.0-25.0' Native Alluvium: dark gray, sitly, very fine-grained sand; moist. Boring terminated @ 25.0'

Notes:

Radiological samples collected at 5 and 25 feet below ground surface.

Non-radiological samples collected at 25 feet below ground surface; priority pollutant sampling.

Perched water not encountered during boring activities.

Groundwater not encountered during boring activities.

Soil Boring Log

McLaren Hart

Boring No.	Project No./Name	Page:
WL-214	07.0803035.003.002	1 of 1

Start/Finish Date	Site Name and Location
8/29/95	West Lake Landfill; Bridgeton, Missouri

Drilling Contractor	Boring Location:	Area 2
Drilling Service Company	Ground Surface Elevation:	468.5
Driller	**Northing:**	1070206.86
Bruce Murphy	**Easting:**	515241.19

Drilling Equipment	McLaren/Hart Geologist/Office
LDH-80T Drill Rig, Large Diameter Auger	*Tim Biggs / St. Louis*

Bit Size/Type	Sample Method	T.D. Borehole	Well Installed?
24" OD Solid Auger	Grab from Augers	25'	None Installed

Remarks:

Depth (ft)	Sample ID #	Geiger Reading (mR/hr)	Description
5	WL-214 5'	Background (0.02-0.04)	0.0-24.0' Landfill Debris: trashy debris consisting of shingles, carpeting, glass, wood, plastic, brick, paper, wire, and metal; soil consisting of dark gray clayey silt to fine-grained sand; dry to moist.
10	WL-214 10'	Background (0.02-0.04)	
15	WL-214 15'	Background (0.02-0.04)	
20	WL-214 20'	Background (0.02-0.04)	
25	WL-214 25'	Background (0.02-0.04)	24.0-25.0' Native Alluvium: dark gray, silty, fine-grained sand; moist. Boring terminated @ 25.0'

Notes:

Radiological samples collected at 5 and 25 feet below ground surface.

Non-radiological samples collected at 25 feet below ground surface; priority pollutant sampling.

Perched water not encountered during boring activities.

Groundwater not encountered during boring activities.

Soil Boring Log

McLaren Hart

Boring No.	Project No./Name	Page:
WL-215	07.0803035.003.002	1 of 1

Start/Finish Date	Site Name and Location
8/29/95	West Lake Landfill; Bridgeton, Missouri

Drilling Contractor	Boring Location:	Area 2
Drilling Service Company	Ground Surface Elevation:	470
Driller	Northing:	1070432.01
Bruce Murphy	Easting:	515259.72

Drilling Equipment	McLaren/Hart Geologist/Office
LDH-80T Drill Rig, Large Diameter Auger	Tim Biggs / St. Louis

Bit Size/Type	Sample Method	T.D. Borehole	Well Installed?
24" OD Solid Auger	Grab from Augers	16'	None Installed

Remarks:

Depth (ft)	Sample ID #	Geiger Reading (mR/hr)	Description
5	WL-215 5'	Background (0.02-0.04)	0.0-16.0' Landfill Debris: trashy debris consisiting of wood, plastic, rubber, and wire; soil consisting of dark gray to black silty clay; dry to wet. @ 6' wet
10	None Taken	None Taken	
15	None Taken	None Taken	
20	None Taken	None Taken	Boring abandoned @ 16.0'

Notes:

Radiological samples not collected during boring activities.

Non-radiological samples not collected during boring activities.

Perched water encountered at 6 feet below ground surface.

Groundwater not encountered during boring activities.

Soil Boring Log

McLaren Hart

Boring No.	Project No./Name	Page:
WL-216A	07.0803035.003.002	1 of 3

Start/Finish Date	Site Name and Location
8/29/95 / 10/17/95	West Lake Landfill; Bridgeton, Missouri

Drilling Contractor	Boring Location:	Area 2
Hart Environmental Drilling	Ground Surface Elevation:	477.4
Drilling Service Company	Northing:	1069836.29
Driller	Easting:	514936.08
Max Tinnin	McLaren/Hart Geologist/Office	
Bruce Murphy	Tim Biggs / St. Louis	

Drilling Equipment
CME-55 Drill Rig, Hollow Stem Augers
LDH-80T Drill Rig, Large Diameter Auger

Bit Size/Type	Sample Method	T.D. Borehole	Well Installed?
4 1/8" Drag Bit (mud rotary) 4 1/4" ID; 8 1/4" Hole 24" OD Solid Auger	5' Continuous Sampler Grab from Auger	146.2	D-12

Remarks:

Depth (ft)	Sample ID #	Geiger Reading (mR/hr)	Description
5	WL-216 5'	Background	0.0-22.0' Landfill Debris: soil consiting of grayish brown to olive brown silty clay to gray, very fine-grained sand, and crushed rock; no trashy debris encountered; dry to moist.
10	WL-216 10'	Background	
15	WL-216 15'	Background	
20	WL-216 20'	Background	
25	WL-216 25'	Background	22.0-65.0' Native Alluvium: gray, silty, very fine-grained sand grading to coarse-grained sand, gravel, cobbles, and coal; moist to wet.
30	None Taken	None Taken	
35	None Taken	None Taken	
40	None Taken	None Taken	
45	None Taken	None Taken	
50	None Taken	None Taken	@ 48' wet
55	None Taken	None Taken	
60	None Taken	None Taken	

Soil Boring Log

McLaren Hart

Boring No.	Project No./Name	Page:
WL-216A	07.0803035.003.002	2 of 3

Start/Finish Date	Site Name and Location
8/29/95 / 10/17/95	West Lake Landfill; Bridgeton, Missouri

Drilling Contractor	Boring Location:	Area 2
Hart Environmental Drilling	Ground Surface Elevation:	477.4
Drilling Service Company	Northing:	1069836.29
Driller	Easting:	514936.08
Max Tinnin	*McLaren/Hart Geologist/Office*	
Bruce Murphy	Tim Biggs / St. Louis	

Drilling Equipment

CME-55 Drill Rig, Hollow Stem Augers

LDH-80T Drill Rig, Large Diameter Auger

Bit Size/Type	Sample Method	T.D. Borehole	Well Installed?
4 1/8" Drag Bit (mud rotary)	5' Continuous Sampler	146.2	D-12
4 1/4" ID; 8 1/4" Hole	Grab from Auger		
24" OD Solid Auger			

Remarks:

Depth (ft)	Sample ID #	Geiger Reading (mR/hr)	Description
65	None Taken	None Taken	
70	None Taken	None Taken	65.0-125.0' Native Alluvium: gray, silty, very fine-grained sand grading to coarse-grained sand, gravel, cobbles, and coal; moist to wet.
75	None Taken	None Taken	
80	None Taken	None Taken	
85	None Taken	None Taken	
90	None Taken	None Taken	
95	None Taken	None Taken	
100	None Taken	None Taken	
105	None Taken	None Taken	
110	None Taken	None Taken	
115	None Taken	None Taken	

Soil Boring Log

McLaren Hart

Boring No.	Project No./Name	Page:
WL-216A	07.0803035.003.002	3 of 3

Start/Finish Date	Site Name and Location
8/29/95 / 10/17/95	West Lake Landfill; Bridgeton, Missouri

Drilling Contractor	Boring Location:	Area 2
Hart Environmental Drilling	Ground Surface Elevation:	477.4
Drilling Service Company	Northing:	1069836.29
Driller	Easting:	514936.08
Max Tinnin	McLaren/Hart Geologist/Office	
Bruce Murphy	Tim Biggs / St. Louis	

Drilling Equipment

CME-55 Drill Rig, Hollow Stem Augers

LDH-80T Drill Rig, Large Diameter Auger

Bit Size/Type	Sample Method	T.D. Borehole	Well Installed?
4 1/8" Drag Bit (mud rotary)	5' Continuous Sampler	146.2	D-12
4 1/4" ID; 8 1/4" Hole	Grab from Auger		
24" OD Solid Auger			

Remarks:

Depth (ft)	Sample ID #	Geiger Reading (mR/hr)	Description
120	None Taken	None Taken	
125	None Taken	None Taken	
130	None Taken	None Taken	125.0-146.2' Native Alluvium: gray, silty, very fine-grained sand grading to coarse-grained sand, gravel, cobbles, and coal; moist to wet.
135	None Taken	None Taken	
140	None Taken	None Taken	
145	None Taken	None Taken	
150	None Taken	None Taken	Auger refusal @ 146.2' (bedrock)

Notes:

Radiological samples collected at 5 and 25 feet below ground surface; downhole logging indicated elevated gamma readings from 2.5-5.0'.

Non-radiological samples not collected during boring activities.

Perched water not encountered during boring activities.

Groundwater encountered at 48 feet below ground surface.

Soil Boring Log

McLaren Hart

Boring No.	Project No./Name	Page:
WL-216B (WL-232)	07.0803035.003.002	1 of 1

Start/Finish Date	Site Name and Location
8/30/95 / 9/19/95	West Lake Landfill; Bridgeton, Missouri

Drilling Contractor	Boring Location:	Area 1
Hart Environmental Drilling	Ground Surface Elevation:	477.5
Drilling Service Company	Northing:	1069827.87
Driller	Easting:	514931.35
Max Tinnin	McLaren/Hart Geologist/Office	
Bruce Murphy	Tim Biggs / St. Louis	

Drilling Equipment CME-55 Drill Rig, Hollow Stem Augers
LDH-80T Drill Rig, Large Diameter Auger

Bit Size/Type	Sample Method	T.D. Borehole	Well Installed?
4 1/4" ID; 8 1/4" Hole 24" OD Solid Auger	5' Continuous Sampler Grab from Auger	54.5'	S-10

Remarks:

Depth (ft)	Sample ID #	Geiger Reading (mR/hr)	Description
5	None Taken	Background (0.01-0.03)	0.0-22.0' Landfill Debris: soil consisting of grayish brown to olive brown silty clay to gray, very-fine grained sand, and crushed rock; no trashy debris encountered; dry to moist.
10	None Taken	Background (0.01-0.03)	
15	None Taken	Background (0.01-0.03)	
20	None Taken	Background (0.01-0.03)	
25	None Taken	None Taken	22.0-54.5' Native Alluvium: gray, silty, very fine-grained sand grading to coarse-grained sand; moist to wet.
30	None Taken	None Taken	
35	None Taken	None Taken	
40	None Taken	None Taken	@ 40' wet
45	None Taken	None Taken	
50	None Taken	None Taken	
55	None Taken	None Taken	Boring terminated @ 54.5'

Notes:

Radiological samples not collected during boring activities; downhole logging indicated elevated gamma readings from 3.0-5.0'.

Non-radiological samples not collected during boring activities.

Perched water not encountered during boring activities.

Groundwater encountered at 40 feet below ground surface.

Soil Boring Log

McLaren Hart

Boring No.	Project No./Name	Page:
WL-216C	07.0803035.003.002	1 of 2

Start/Finish Date	Site Name and Location
8/30/95 / 10/13/95	West Lake Landfill: Bridgeton, Missouri

Drilling Contractor	Boring Location:	Area 2
Hart Environmental Drilling	Ground Surface Elevation:	477.6
Drilling Service Company	Northing:	1069819.16
Driller	Easting:	514925.06
Max Tinnin	McLaren/Hart Geologist/Office	
Bruce Murphy	Tim Biggs / St. Louis	

Drilling Equipment
CME-55 Drill Rig, Hollow Stem Augers
LDH-80T Drill Rig, Large Diameter Auger

Bit Size/Type	Sample Method	T.D. Borehole	Well Installed?
4 1/8" Drag Bit (mud rotary) 4 1/4" ID; 8 1/4" Hole 24" OD Solid Auger	5' Continuous Sampler Grab from Auger	93'	I-11

Remarks:

Depth (ft)	Sample ID #	Geiger Reading (mR/hr)	Description
5	WL-216 5'	0.12	0.0-26.0' Landfill Debris: trashy debris consisting of plastic, cloth, and glass; soil consisting of grayish brown to olive brown silty clay to gray, very fine-grained sand, and limestone rock; dry to moist.
10	None Taken	Background (0.02-0.04)	
15	None Taken	Background (0.02-0.04)	
20	None Taken	Background (0.02-0.04)	
25	None Taken	None Taken	
30	None Taken	None Taken	26.0-60.0' Native Alluvium: gray, silty, very fine-grained sand grading to coarse-grained sand and gravel; moist to wet.
35	None Taken	None Taken	
40	None Taken	None Taken	
45	None Taken	None Taken	
50	None Taken	None Taken	@ 48' wet
55	None Taken	None Taken	
60	None Taken	None Taken	

Soil Boring Log

McLaren Hart

Boring No.	Project No./Name	Page:
WL-216C	07.0803035.003.002	2 of 2

Start/Finish Date	Site Name and Location
8/30/95 / 10/13/95	West Lake Landfill; Bridgeton, Missouri

Drilling Contractor	Boring Location:	Area 2
Hart Environmental Drilling	Ground Surface Elevation:	477.6
Drilling Service Company	Northing:	1069819.16
Driller	Easting:	514925.06
Max Tinnin	McLaren/Hart Geologist/Office	
Bruce Murphy	Tim Biggs / St. Louis	

Drilling Equipment

CME-55 Drill Rig, Hollow Stem Augers

LDH-80T Drill Rig, Large Diameter Auger

Bit Size/Type	Sample Method	T.D. Borehole	Well Installed?
4 1/8" Drag Bit (mud rotary)	5' Continuous Sampler	93'	I-11
4 1/4" ID; 8 1/4" Hole	Grab from Auger		
24" OD Solid Auger			

Remarks:

Depth (ft)	Sample ID #	Geiger Reading (mR/hr)	Description
65	None Taken	None Taken	
70	None Taken	None Taken	65.0-93.0' Native Alluvium: gray, silty, very fine-grained sand grading to coarse-grained sand and gravel; moist to wet.
75	None Taken	None Taken	
80	None Taken	None Taken	
85	None Taken	None Taken	
90	None Taken	None Taken	
95	None Taken	None Taken	Auger refusal @ 93.0'

Notes:

Radiological samples not collected during boring activities; downhole logging indicated elevated gamma readings from 1.0-6.5'.

Non-radiological samples not collected during boring activities.

Perched water not encountered during boring activities.

Groundwater encountered at 48 feet below ground surface.

Soil Boring Log

McLaren Hart

Boring No.	Project No./Name	Page:
WL-217	07.0803035.003.002	1 of 1

Start/Finish Date	Site Name and Location
8/30/95	West Lake Landfill; Bridgeton, Missouri

Drilling Contractor	Boring Location:	Area 2
Drilling Service Company	Ground Surface Elevation:	474.7
Driller	**Northing:**	1069961.30
Bruce Murphy	**Easting:**	515082.21

Drilling Equipment	McLaren/Hart Geologist/Office
LDH-80T Drill Rig, Large Diameter Auger	Tim Biggs / St. Louis

Bit Size/Type	Sample Method	T.D. Borehole	Well Installed?
24" OD Solid Auger	Grab from Augers	17'	None Installed

Remarks:

Depth (ft)	Sample ID #	Geiger Reading (mR/hr)	Description
5	WL-217 5'	Background (0.02-0.04)	0.0-17.0' Landfill Debris: trashy debris consisting of plastic, cloth, and paper; soil consisting of olive brown to dark gray silty clay, and crushed rock; dry to wet.
10	WL-217 10'	Background (0.02-0.04)	
15	WL-217 15'	None Taken	@ 12' wet
20	None Taken	None Taken	Abandoned boring @ 17.0'

Notes:

Radiological samples collected at 5 and 10 feet below ground surface.

Non-radiological samples not collected during boring activities.

Perched water encountered at 12 feet below ground surface.

Groundwater not encountered during boring activities.

Soil Boring Log

McLaren Hart

Boring No.	Project No./Name	Page:
WL-218	07.0803035.003.002	1 of 1

Start/Finish Date	**Site Name and Location**
8/30/95	West Lake Landfill; Bridgeton, Missouri
Drilling Contractor	**Boring Location:** Area 2
Drilling Service Company	**Ground Surface Elevation:** 489.7
Driller	**Northing:** 1069462.69
Bruce Murphy	**Easting:** 514839.09

Drilling Equipment	**McLaren/Hart Geologist/Office**
LDH-80T Drill Rig, Large Diameter Auger	Tim Biggs / St. Louis

Bit Size/Type	Sample Method	T.D. Borehole	Well Installed?
24" OD Solid Auger	Grab from Augers	40'	None Installed

Remarks:

Depth (ft)	Sample ID #	Geiger Reading (mR/hr)	Description
5	WL-218 5'	Background (0.02-0.05)	0.0-37.0' Landfill Debris: trashy debris consisting of yard waste, wood, plastic, cloth, paper, wire, and metal; soil consisting of dark gray silty clay to fine-grained sand; dry to moist.
10	None Taken	Background (0.02-0.05)	
15	None Taken	Background (0.02-0.05)	
20	WL-218 20'	Background (0.02-0.05)	
25	WL-218 25'	Background (0.02-0.05)	
30	WL-218 30'	Background (0.02-0.05)	
35	WL-218 35'	Background (0.02-0.05)	
40	WL-218 40'	Background (0.02-0.05)	37.0-40.0' Native Alluvium: Dark gray, fine-grained sand; moist. Boring terminated @ 40.0'

Notes:

Radiological samples collected at 5 and 40 feet below ground surface.

Non-radiological samples collected at 25 feet below ground surface; priority pollutant sampling.

Perched water not encountered during boring activities.

Groundwater not encountered during boring activities.

Soil Boring Log

McLaren Hart

Boring No.	Project No./Name	Page:
WL-219	07.0803035.003.002	1 of 1

Start/Finish Date	**Site Name and Location**
8/31/95	West Lake Landfill; Bridgeton, Missouri
Drilling Contractor	**Boring Location:** Area 2
Drilling Service Company	**Ground Surface Elevation:** 496.7
Driller	**Northing:** 1069142.47
Bruce Murphy	**Easting:** 514545.63

Drilling Equipment	**McLaren/Hart Geologist/Office**
LDH-80T Drill Rig, Large Diameter Auger	Tim Biggs / St. Louis

Bit Size/Type	Sample Method	T.D. Borehole	Well Installed?
24" OD Solid Auger	Grab from Auger	27'	None Installed

Remarks:

Depth (ft)	Sample ID #	Geiger Reading (mR/hr)	Description
5	WL-219 5'	Background (0.02-0.04)	0.0-27.0' Landfill Debris: trashy debris consisting of shingles, concrete, wood, plastic, cloth, paper, and metal; soil consisting of olive brown silt to dark gray silty clay; dry to wet.
10	WL-219 10'	Background (0.02-0.04)	
15	WL-219 15'	Background (0.02-0.04)	
20	WL-219 20'	Background (0.02-0.04)	
25	None Taken	None Taken	@ 21' wet
30	None Taken	None Taken	Boring abandoned @ 27.0'

Notes:

Radiological samples collected at 5 and 10 feet below ground surface; grab perched water sample collected and analyzed.

Non-radiological samples collected at 25 feet below ground surface; grab perched water contingency sampling.

Perched water encountered at 21 feet below ground surface.

Groundwater not encountered during boring activities.

Soil Boring Log

McLaren Hart

Boring No.	Project No./Name	Page:
WL-220	07.0803035.003.002	1 of 1

Start/Finish Date	Site Name and Location
8/31/95	West Lake Landfill; Bridgeton, Missouri

Drilling Contractor	Boring Location:	Area 2
Drilling Service Company	Ground Surface Elevation:	503.9
Driller	Northing:	1069258.11
Bruce Murphy	Easting:	514733.38

Drilling Equipment	McLaren/Hart Geologist/Office
LDH-80T Drill Rig, Large Diameter Auger	Tim Biggs / St. Louis

Bit Size/Type	Sample Method	T.D. Borehole	Well Installed?
24" OD Solid Auger	Grab from Augers	30'	None Installed

Remarks:

Depth (ft)	Sample ID #	Geiger Reading (uR/hr)	Description
5	WL-220 5'	Background (0.02-0.04)	0.0-30.0' Landfill Debris: trashy debris consisting of yard waste, wood, plastic, cloth, paper, cardboard, insulation, concrete, and metal; soil consisting of dark gray silty clay, and crushed rock; dry to wet.
10	WL-220 10'	Background (0.02-0.04)	
15	WL-220 15'	Background (0.02-0.04)	
20	WL-220 20'	Background (0.02-0.04)	
25	WL-220 25'	Background (0.02-0.04)	@ 23' wet
30	None Taken	None Taken	Boring abandoned @ 30.0'

Notes:

Radiological samples collected at 5 and 25 feet below ground surface; grab perched water sample collected and analyzed.

Non-radiological samples not collected during boring activities.

Perched water encountered at 23 feet below ground surface.

Groundwater not encountered during boring activities.

Soil Boring Log

McLaren Hart

Boring No.	Project No./Name	Page:
WL-221	07.0803035.003.002	1 of 1

Start/Finish Date	Site Name and Location
9/1/95	West Lake Landfill; Bridgeton, Missouri

Drilling Contractor	Boring Location:	Area 2
Drilling Service Company	Ground Surface Elevation:	462.3
Driller	Northing:	1070567.35
Bruce Murphy	Easting:	514459.37

Drilling Equipment	McLaren/Hart Geologist/Office
LDH-80T Drill Rig, Large Diameter Auger	Tim Biggs / St. Louis

Bit Size/Type	Sample Method	T.D. Borehole	Well Installed?
24" OD Solid Auger	Grab from Augers	35'	None Installed

Remarks:

Depth (ft)	Sample ID #	Geiger Reading (mR/hr)	Description
5	WL-221 5'	Background (0.02-0.04)	0.0-34.0' Landfill Debris: trashy debris consisting of glass, wood, wire, plastic, cloth, paper, and carpeting; soil consisting of dark gray and black silty clay to dark gray fine-grained sand; dry to moist.
10	WL-221 10'	Background (0.02-0.04)	
15	WL-221 15'	Background (0.02-0.04)	
20	WL-221 20'	Background (0.02-0.04)	
25	WL-221 25'	Background (0.02-0.04)	
30	WL-221 30'	Background (0.02-0.04)	
35	WL-221 35'	Background (0.02-0.04)	34.0-35.0' Native Alluvium: dark gray, silty, fine-grained sand; wet. @ 34' wet Boring terminated @ 35.0'

Notes:

Radiological samples collected at 5 and 35 feet below ground surface.

Non-radiological samples collected at 35 feet below ground surface; priority pollutant sampling.

Perched water not encountered during boring activities.

Groundwater encountered at 34 feet below ground surface.

Soil Boring Log

McLaren Hart

Boring No.	Project No./Name	Page:
WL-222	07.0803035.003.002	1 of 1

Start/Finish Date	Site Name and Location
9/1/95	West Lake Landfill; Bridgeton, Missouri

Drilling Contractor	Boring Location:	Area 2
Drilling Service Company	Ground Surface Elevation:	457.8
Driller	Northing:	1070799.38
Bruce Murphy	Easting:	514618.74

Drilling Equipment	McLaren/Hart Geologist/Office
LDH-80T Drill Rig, Large Diameter Auger	Tim Biggs / St. Louis

Bit Size/Type	Sample Method	T.D. Borehole	Well Installed?
24" OD Solid Auger	Grab from Augers	35'	None Installed

Remarks:

Depth (ft)	Sample ID #	Geiger Reading (mR/hr)	Description
5	WL-222 5'	Background (0.02-0.04)	0.0-30.0' Landfill Debris: trashy debris consisting of plastic, cloth, paper, carpeting, wood, and metal; soil consisting of dark gray to black clay and silty clay to dark gray, silty, fine-grained sand; dry to moist.
10	WL-222 10'	Background (0.02-0.04)	
15	None Taken	Background (0.02-0.04)	
20	None Taken	Background (0.02-0.04)	
25	WL-222 25'	Background (0.02-0.04)	
30	None Taken	Background (0.02-0.04)	@ 30' wet
35	WL-222 35'	Background (0.02-0.04)	30.0-35.0' Native Alluvium: dark gray, silty, fine-grained sand; wet. Boring terminated @ 35.0'

Notes:

Radiological samples collected at 5 and 30 feet below ground surface.

Non-radiological samples collected at 30 feet below ground surface; priority pollutant and priority pollutant duplicate sampling.

Perched water not encountered during boring activities.

Groundwater encountered at 30 feet below ground surface.

Soil Boring Log

McLaren Hart

Boring No.	Project No./Name	Page:
WL-223	07.0803035.003.002	1 of 1

Start/Finish Date	**Site Name and Location**
9/5/95	West Lake Landfill; Bridgeton, Missouri
Drilling Contractor	**Boring Location:** Area 2
Drilling Service Company	**Ground Surface Elevation:** 462.2
Driller	**Northing:** 1070745.71
Bruce Murphy	**Easting:** 514734.14

Drilling Equipment	**McLaren/Hart Geologist/Office**
LDH-80T Drill Rig, Large Diameter Auger	Tim Biggs / St. Louis

Bit Size/Type	Sample Method	T.D. Borehole	Well Installed?
24" OD Solid Auger	Grab from Augers	23'	None Installed

Remarks:

Depth (ft)	Sample ID #	Geiger Reading (mR/hr)	Description
5	WL-223 5'	Background (0.01-0.03)	0.0-22.0' Landfill Debris: trashy debris consisting of wire, wood, plastic, cloth, rubber, and paper; soil consisting of brownish yellow silt to dark gray silty clay and silty fine-grained sand; dry to moist.
10	WL-223 10'	Background (0.01-0.03)	
15	WL-223 15'	Background (0.01-0.03)	
20	WL-223 20'	Background (0.01-0.03)	
25	WL-223 23'	Background (0.01-0.03)	22.0-23.0' Native Alluvium: dark gray, fine-grained sand; moist. Boring terminated @ 23.0'

Notes:

Radiological samples collected at 5 and 22 feet below ground surface; downhole logging indicated elevated gamma readings from 4.0-5.5'.

Non-radiological samples not collected during boring activities.

Perched water not encountered during boring activities.

Groundwater not encountered during boring activities.

Soil Boring Log

McLaren Hart

Boring No.	Project No./Name	Page:
WL-224	07.0803035.003.002	1 of 3

Start/Finish Date	Site Name and Location
9/14/95 / 10/19/95	West Lake Landfill; Bridgeton, Missouri

Drilling Contractor	Boring Location:	Area 2
Hart Environmental Drilling	Ground Surface Elevation:	468.4
Drilling Service Company	Northing:	1070485.74
Driller	Easting:	515601.73
Max Tinnin	*McLaren/Hart Geologist/Office*	
Bruce Murphy	Tim Biggs / St. Louis	

Drilling Equipment
CME-55 Drill Rig, Hollow Stem Augers
LDH-80T Drill Rig, Large Diameter Auger

Bit Size/Type	*Sample Method*	*T.D. Borehole*	*Well Installed?*
4 1/8" Drag Bit (mud rotary) 4 1/4" ID; 8 1/4" Hole 24" OD Solid Auger	5' Continuous Sampler Grab from Auger	135.5	D-13

Remarks:

Depth (ft)	Sample ID #	Geiger Reading (mR/hr)	Description
5	WL-224 5'	Background (0.02-0.04)	0.0-33.0' Landfill Debris: trashy debris consisting of rubber, wood, plastic, cloth, paper, glass, and metal; soil consisting of brownish yellow silt and dark gray clayey silt to silty fine-grained sand; dry to moist.
10	WL-224 10'	Background (0.02-0.04)	
15	WL-224 15'	Background (0.02-0.04)	
20	WL-224 20'	Background (0.02-0.04)	
25	WL-224 25'	Background (0.02-0.04)	
30	WL-224 30'	Background (0.02-0.04)	
35	WL-224 35'	Background (0.02-0.04)	@ 33' wet 33.0-65.0' Native Alluvium: dark gray clayey silt grading to fine to coarse grained sand, and coal; wet.
40	None Taken	Background (0.02-0.04)	
45	None Taken	Background (0.02-0.04)	
50	None Taken	Background (0.02-0.04)	
55	None Taken	None Taken	
60	None Taken	None Taken	

Soil Boring Log

McLaren Hart

Boring No.	Project No./Name	Page:
WL-224	07.0803035.003.002	2 of 3

Start/Finish Date	Site Name and Location
9/14/95 / 10/19/95	West Lake Landfill; Bridgeton, Missouri

Drilling Contractor	Boring Location:	Area 2
Hart Environmental Drilling	Ground Surface Elevation:	468.4
Drilling Service Company	Northing:	1070485.74
Driller	Easting:	515601.73
Max Tinnin	McLaren/Hart Geologist/Office	
Bruce Murphy	Tim Biggs / St. Louis	

Drilling Equipment

CME-55 Drill Rig, Hollow Stem Augers

LDH-80T Drill Rig, Large Diameter Auger

Bit Size/Type	Sample Method	T.D. Borehole	Well Installed?
4 1/8" Drag Bit (mud rotary)	5' Continuous Sampler	135.5	D-13
4 1/4" ID; 8 1/4" Hole	Grab from Auger		
24" OD Solid Auger			

Remarks:

Depth (ft)	Sample ID #	Geiger Reading (mR/hr)	Description
65	None Taken	None Taken	65.0-125.0' Native alluvium: dark gray clayey silt grading to fine to coarse grained sand, and coal; wet.
70	None Taken	None Taken	
75	None Taken	None Taken	
80	None Taken	None Taken	
85	None Taken	None Taken	
90	None Taken	None Taken	
95	None Taken	None Taken	
100	None Taken	None Taken	
105	None Taken	None Taken	
110	None Taken	None Taken	
115	None Taken	None Taken	

Soil Boring Log

McLaren Hart

Boring No.	Project No./Name	Page:
WL-224	07.0803035.003.002	3 of 3

Start/Finish Date	Site Name and Location
9/14/95 / 10/19/95	West Lake Landfill; Bridgeton, Missouri

Drilling Contractor	Boring Location:	Area 2
Hart Environmental Drilling	Ground Surface Elevation:	468.4
Drilling Service Company	Northing:	1070485.74
Driller	Easting:	515601.73
Max Tinnin	McLaren/Hart Geologist/Office	
Bruce Murphy	Tim Biggs / St. Louis	

Drilling Equipment

CME-55 Drill Rig, Hollow Stem Augers

LDH-80T Drill Rig, Large Diameter Auger

Bit Size/Type	Sample Method	T.D. Borehole	Well Installed?
4 1/8" Drag Bit (mud rotary)	5' Continuous Sampler		
4 1/4" ID; 8 1/4" Hole	Grab from Auger	135.5	D-13
24" OD Solid Auger			

Remarks:

Depth (ft)	Sample ID #	Geiger Reading (mR/hr)	Description
120	None Taken	None Taken	
125	None Taken	None Taken	
130	None Taken	None Taken	125.0-135.5' Native Alluvium: dark gray clayey silt grading to fine to coarse grained sand, and coal; wet.
135	None Taken	None Taken	
140	None Taken	None Taken	Auger refusal @ 135.5' (bedrock)

Notes:

Radiological samples collected at 5 and 35 feet below ground surface.

Non-radiological samples not collected during boring activities.

Perched water not encountered during boring activities.

Groundwater encountered at 33 feet below ground surface.

Soil Boring Log

McLaren Hart

Boring No.	Project No./Name	Page:
WL-225	07.0803035.003.002	1 of 1

Start/Finish Date	**Site Name and Location**
9/14/95	West Lake Landfill; Bridgeton, Missouri
Drilling Contractor	**Boring Location:** Area 2
Drilling Service Company	**Ground Surface Elevation:** 468.2
Driller	**Northing:** 1070576.93
Bruce Murphy	**Easting:** 515632.66

Drilling Equipment	**McLaren/Hart Geologist/Office**
LDH-80T Drill Rig, Large Diameter Auger	Tim Biggs / St. Louis

Bit Size/Type	Sample Method	T.D. Borehole	Well Installed?
24" OD Solid Auger	Grab from Augers	37'	None Installed

Remarks:

Depth (ft)	Sample ID #	Geiger Reading (mR/hr)	Description
5	WL-225 5'	Background (0.02-0.04)	0.0-37.0' Landfill Debris: trashy debris consisting of rubber, shingles, wood, plastic, cloth, paper, glass, concrete, and metal; soil consisting of dark gray, slightly sandy, clayey silt; dry to wet.
10	WL-225 10'	Background (0.02-0.04)	
15	WL-225 15'	Background (0.02-0.04)	
20	WL-225 20'	Background (0.02-0.04)	
25	WL-225 25'	Background (0.02-0.04)	
30	WL-225 30'	Background (0.02-0.04)	
35	WL-225 35'	Background (0.02-0.04)	@ 31.5' wet
40	None Taken	None Taken	Boring terminated @ 37.0'

Notes:

Radiological samples collected at 5 and 35 feet below ground surface.

Non-radiological samples not collected during boring activities.

Perched water not encountered during boring activities.

Groundwater encountered at 31.5 feet below ground surface.

Soil Boring Log

McLaren Hart

Boring No.	Project No./Name	Page:
WL-226	07.0803035.003.002	1 of 1

Start/Finish Date	Site Name and Location
9/15/95	West Lake Landfill; Bridgeton, Missouri

Drilling Contractor	Boring Location:	Area 2
Drilling Service Company	Ground Surface Elevation:	467.5
Driller	Northing:	1070536.03
Bruce Murphy	Easting:	514992.10

Drilling Equipment	McLaren/Hart Geologist/Office
LDH-80T Drill Rig, Large Diameter Auger	Tim Biggs / St. Louis

Bit Size/Type	Sample Method	T.D. Borehole	Well Installed?
24" OD Solid Auger	Grab from Augers	43'	None Installed

Remarks:

Depth (ft)	Sample ID #	Geiger Reading (mR/hr)	Description
5	WL-226 5'	Background (0.02-0.04)	0.0-42.0' Landfill Debris: trashy debris consisting of wood, rubber, wire, plastic, cloth, and paper; soil consisting of dark gray, slightly sandy, clayey silt to fine-grained sand; dry to moist.
10	WL-226 10'	Background (0.02-0.04)	
15	WL-226 15'	0.11	
20	WL-226 20'	Background (0.02-0.04)	
25	WL-226 25'	Background (0.02-0.04)	
30	WL-226 30'	Background (0.02-0.04)	
35	WL-226 35'	Background (0.02-0.04)	
40	WL-226 40'	Background (0.02-0.04)	
			@ 42' wet
45	WL-226 43'	None Taken	42.0-43.0' Native Alluvium: dark gray fine-grained sand; wet. Boring terminated @ 43.0'

Notes:

Radiological samples collected at 10 and 20 feet below ground surface; downhole logging indicated elevated gamma readings from 2.0-3.5' and 6.0-16.0'.

Non-radiological samples collected at 43 feet below ground surface; priority pollutant sampling.

Perched water not encountered during boring activities.

Groundwater encountered at 42 feet below ground surface.

Soil Boring Log

McLaren Hart

Boring No.	Project No./Name	Page:
WL-227	07.0803035.003.002	1 of 1

Start/Finish Date	Site Name and Location
9/15/95	West Lake Landfill; Bridgeton, Missouri

Drilling Contractor	Boring Location:	Area 2
Drilling Service Company	Ground Surface Elevation:	462
Driller	**Northing:**	1070685.99
Bruce Murphy	**Easting:**	515258.39

Drilling Equipment	McLaren/Hart Geologist/Office
LDH-80T Drill Rig, Large Diameter Auger	Tim Biggs / St. Louis

Bit Size/Type	Sample Method	T.D. Borehole	Well Installed?
24" OD Solid Auger	Grab from Augers	40'	None Installed

Remarks:

Depth (ft)	Sample ID #	Geiger Reading (mR/hr)	Description
5	WL-227 5'	Background (0.02-0.04)	0.0–40.0' Landfill Debris: trashy debris consisting of wood, rubber, plastic, cloth, glass, carpeting, metal, and paper; soil consisting of brown and dark gray silty clay to dark gray fine-grained sand; dry to wet.
10	WL-227 10'	Background (0.02-0.04)	
15	WL-227 15'	Background (0.02-0.04)	
20	WL-227 20'	Background (0.02-0.04)	
25	WL-227 25'	Background (0.02-0.04)	
30	WL-227 30'	Background (0.02-0.04)	@ 28' wet
35	WL-227 35'	Background (0.02-0.04)	
40	WL-227 40'	Background (0.02-0.04)	40.0' Native Alluvium: dark gray fine-grained sand; wet. Boring terminated @ 40.0'

Notes:

Radiological samples collected at 5 and 40 feet below ground surface.

Non-radiological samples collected at 40 feet below ground surface; priority pollutant sampling.

Perched water not encountered during boring activities.

Groundwater encountered at 28 feet below ground surface.

Soil Boring Log

McLaren Hart

Boring No.	Project No./Name	Page:
WL-228	07.0803035.003.002	1 of 1

Start/Finish Date	Site Name and Location
9/15/95	West Lake Landfill; Bridgeton, Missouri

Drilling Contractor	Boring Location:	Area 2
Hart Environmental Drilling	Ground Surface Elevation:	441.6
Driller	Northing:	1071044.35
Max Tinnin	Easting:	514724.16

Drilling Equipment	McLaren/Hart Geologist/Office
CME-55 Drill Rig; Hollow Stem Augers	Tim Biggs / St. Louis

Bit Size/Type	Sample Method	T.D. Borehole	Well Installed?
4 1/4"ID; 8 1/4" Hole	5' Continuous Sampler	29.3'	S-8

Remarks:

Depth (ft)	Sample ID #	Geiger Reading (mR/hr)	Description
5	WL-228 5'	Background (0.01-0.04)	0.0-29.3' Native Alluvium: olive brown sandy silt and silty clay grading to dark gray medium to coarse-grained sand; dry to wet.
10	WL-228 10'	Background (0.01-0.04)	@ 10' wet
15	WL-228 15'	Background (0.01-0.04)	
20	WL-228 20'	Background (0.01-0.04)	
25	WL-228 25'	Background (0.01-0.04)	
30	None Taken	Background (0.01-0.04)	Boring terminated @ 29.3'

Notes:

Radiological samples collected at 5 and 15 feet below ground surface.

Non-radiological samples not collected during boring activities.

Perched water not encountered during boring activities.

Groundwater encountered at 10 feet below ground surface.

Soil Boring Log

McLaren Hart

Boring No.	Project No./Name	Page:
WL-229	07.0803035.003.002	1 of 2

Start/Finish Date	Site Name and Location
9/18/95	West Lake Landfill; Bridgeton, Missouri

Drilling Contractor	Boring Location:	Area 2
Hart Environmental Drilling	Ground Surface Elevation:	448.5
Driller	**Northing:**	1069329.26
Max Tinnin	**Easting:**	514268.59

Drilling Equipment	McLaren/Hart Geologist/Office
CME-55 Drill Rig, Hollow Stem Augers	Tim Biggs / St. Louis

Bit Size/Type	Sample Method	T.D. Borehole	Well Installed?
4 1/4" ID; 8 1/4" Hole	5' Continuous Sampler	55.6'	I-9

Remarks:

Depth (ft)	Sample ID #	Geiger Reading (mR/hr)	Description
5	WL-229 5	Background (0.01-0.04)	0.0-5.0' Landfill Debris: soil consisting of brown silt, and asphalt; no trashy debris encountered; dry.
10	None Taken	Background (0.01-0.04)	5.0-56.0' Native Alluvium: dark gray, silty, fine-grained sand grading to coarse-grained sand with gravel; moist to wet.
15	None Taken	Background (0.01-0.04)	
20	WL-229 20'	Background (0.01-0.04)	@ 16' wet
25	WL-229 25'	Background (0.01-0.04)	
30	WL-229 30'	Background (0.01-0.04)	
35	None Taken	None Taken	
40	None Taken	None Taken	
45	None Taken	None Taken	
50	None Taken	None Taken	

Soil Boring Log

McLaren Hart

Boring No.	Project No./Name	Page:
WL-229	07.0803035.003.002	2 of 2

Start/Finish Date	Site Name and Location
9/18/95	West Lake Landfill; Bridgeton, Missouri

Drilling Contractor	Boring Location:	Area 2
Hart Environmental Drilling	Ground Surface Elevation:	448.5
Driller	Northing:	1069329.26
Max Tinnin	Easting:	514268.59

Drilling Equipment	McLaren/Hart Geologist/Office
CME-55 Drill Rig, Hollow Stem Augers	Tim Biggs / St. Louis

Bit Size/Type	Sample Method	T.D. Borehole	Well Installed?
4 1/4" ID; 8 1/4" Hole	5' Continuous Sampler	55.6'	I-9

Remarks:

Depth (ft)	Sample ID #	Geiger Reading (mR/hr)	Description
55	None Taken	None Taken	50.0-55.6' Native Alluvium: dark gray, silty, fine-grained sand grading to coarse-grained sand with gravel; moist to wet.
60	None Taken	None Taken	Boring terminated @ 55.6'

Notes:

Radiological samples collected at 5 and 20 feet below ground surface.

Non-radiological samples not collected during boring activities.

Perched water not encountered during boring activities.

Groundwater encountered at 16 feet below ground surface.

Soil Boring Log

McLaren Hart

Boring No.	Project No./Name	Page:
WL-230	07.0803035.003.002	1 of 1

Start/Finish Date	Site Name and Location
9/18/95	West Lake Landfill; Bridgeton, Missouri

Drilling Contractor	Boring Location:	Area 2
Drilling Service Company	Ground Surface Elevation:	463.3
Driller	Northing:	1070716.09
Bruce Murphy	Easting:	515139.66

Drilling Equipment	McLaren/Hart Geologist/Office
LDH-80T Drill Rig, Large Diameter Auger	Tim Biggs / St. Louis

Bit Size/Type	Sample Method	T.D. Borehole	Well Installed?
24" OD Solid Auger	Grab from Augers	35'	None Installed

Remarks:

Depth (ft)	Sample ID #	Geiger Reading (mR/hr)	Description
5	WL-230 5'	Background (0.02-0.04)	0.0-32.0' Landfill Debris: trashy debris consisting of plastic, cloth, wire, glass, carpeting, metal, and paper; soil consisting of olive brown silt, dark gray clayey silt, and dark gray, silty, fine-grained sand; dry to wet.
10	WL-230 10'	Background (0.02-0.04)	
15	WL-230 15'	Background (0.02-0.04)	
20	WL-230 20'	Background (0.02-0.04)	@ 16' soil discolored; petroleum odor; OVM reading greater than 10 X background.
25	WL-230 25'	Background (0.02-0.04)	
30	WL-230 30'	Background (0.02-0.04)	@ 29' wet
35	WL-230 35'	Background (0.02-0.04)	32.0-35.0' Native Alluvium: dark gray, silty, fine-grained sand; wet. Boring terminated @ 35.0'

Notes:

Radiological samples collected at 5 and 35 feet below ground surface.

Non-radiological samples collected at 16 and 35 feet below ground surface; contingency sampling.

Perched water not encountered during boring activities.

Groundwater encountered at 29 feet below ground surface.

Soil Boring Log

McLaren Hart

Boring No.	Project No./Name	Page:
WL-231	07.0803035.003.002	1 of 1

Start/Finish Date	Site Name and Location
9/18/95	West Lake Landfill; Bridgeton, Missouri

Drilling Contractor	Boring Location:	Area 2
Drilling Service Company	Ground Surface Elevation:	464.8
Driller	**Northing:**	1070850.73
Bruce Murphy	**Easting:**	515007.27

Drilling Equipment	McLaren/Hart Geologist/Office
LDH-80T Drill Rig, Large Diameter Auger	Tim Biggs / St. Louis

Bit Size/Type	Sample Method	T.D. Borehole	Well Installed?
24" OD Solid Auger	Grab from Augers	40'	None Installed

Remarks:

Depth (ft)	Sample ID #	Geiger Reading (mR/hr)	Description
5	WL-231 5'	Background (0.02-0.04)	0.0-40.0' Landfill Debris: trashy debris consisting of plastic, cloth, glass, and paper; soil consisting of brownish gray silt, dark gray and black clayey silt to dark gray, silty, fine-grained sand, and crushed rock; dry to wet.
10	WL-231 10'	Background (0.02-0.04)	
15	WL-231 15'	Background (0.02-0.04)	
20	WL-231 20'	Background (0.02-0.04)	
25	WL-231 25'	Background (0.02-0.04)	
30	WL-231 30'	Background (0.02-0.04)	
			@ 31.5' wet
35	WL-231 35'	Background (0.02-0.04)	
40	None Taken	None Taken	Boring abandoned @ 40.0'

Notes:

Radiological samples collected at 5 and 10 feet below ground surface; downhole logging indicated elevated gamma readings from 4.5-7.5'.

Non-radiological samples collected at 31 feet below ground surface; contingency grab perched water sampling.

Perched water not encountered during boring activities.

Groundwater encountered at 31.5 feet below ground surface.

Soil Boring Log

McLaren Hart

Boring No.	Project No./Name	Page:
WL-233	07.0803035.003.002	1 of 1

Start/Finish Date	Site Name and Location
9/19/95	West Lake Landfill; Bridgeton, Missouri

Drilling Contractor	Boring Location:	Area 2
Drilling Service Company	Ground Surface Elevation:	489.2
Driller	Northing:	1069542.40
Bruce Murphy	Easting:	514609.19

Drilling Equipment	McLaren/Hart Geologist/Office
LDH-80T Drill Rig, Large Diameter Auger	Tim Biggs / St. Louis

Bit Size/Type	Sample Method	T.D. Borehole	Well Installed?
24" OD Solid Auger	Grab from Augers	42.5'	None Installed

Remarks:

Depth (ft)	Sample ID #	Geiger Reading (mR/hr)	Description
5	WL-233 5'	Background (0.02-0.04)	0.0–42.5' Landfill Debris: trashy debris consisting of wood, plastic, cloth, wire, limestone, rubber, metal, and paper; soil consisting of gray clay, dark gray to black silt, and dark gray, silty, fine-grained sand; dry to wet.
10	WL-233 10'	Background (0.02-0.04)	
15	WL-233 15'	Background (0.02-0.04)	
20	WL-233 20'	Background (0.02-0.04)	@ 20' OVM readings greater than 10 X background
25	WL-233 25'	Background (0.02-0.04)	
30	WL-233 30'	Background (0.02-0.04)	
35	WL-233 35'	Background (0.02-0.04)	
40	WL-233 40'	Background (0.02-0.04)	@ 37' wet
45	WL-233 45'	Background (0.02-0.04)	Boring terminated @ 42.5'

Notes:

Radiological samples collected at 27 and 30 feet below ground surface; downhole logging indicated elevated gamma readings from 18.0-24.5'.

Non-radiological samples not collected during boring activities.

Perched water not encountered during boring activities.

Groundwater encountered at 37 feet below ground surface.

Soil Boring Log

McLaren Hart

Boring No.	Project No./Name	Page:
WL-234	07.0803035.003.002	1 of 1

Start/Finish Date	**Site Name and Location**
9/19/95 / 9/20/95	West Lake Landfill; Bridgeton, Missouri
Drilling Contractor	**Boring Location:** Area 2
Drilling Service Company	**Ground Surface Elevation:** 480
Driller	**Northing:** 1069757.62
Bruce Murphy	**Easting:** 514428.12

Drilling Equipment	**McLaren/Hart Geologist/Office**
LDH-80T Drill Rig, Large Diameter Auger	Tim Biggs / St. Louis

Bit Size/Type	Sample Method	T.D. Borehole	Well Installed?
24" OD Solid Auger	Grab from Augers	42'	None Installed

Remarks:

Depth (ft)	Sample ID #	Geiger Reading (mR/hr)	Description
5	WL-234 5'	0.08	0.0-39.0' Landfill Debris: trashy debris consisting of wood, plastic, and glass; soil consisting of brown silt, dark gray clayey silt and silty clay to dark gray, silty, fine-grained sand and crushed rock; dry to moist.
10	WL-234 10'	3.0	
15	WL-234 15'	0.15	
20	WL-234 20'	Background (0.02-0.04)	
25	WL-234 25'	Background (0.02-0.04)	
30	WL-234 30'	Background (0.02-0.04)	
35	WL-234 35'	Background (0.02-0.04)	39.0-42.0' Native Alluvium: dark gray plastic clay grading to clayey silt; moist.
40	WL-234 40'	Background (0.02-0.04)	
45	WL-234 42'	Background (0.02-0.04)	Boring terminated @ 42.0'

Notes:

Radiological samples collected at 10 and 20 feet below ground surface; duplicate samples collected and analyzed; downhole logging indicated elevated gamma readings from 0.0-15.0'.

Non-radiological samples not collected during boring activities.

Perched water not encountered during boring activities.

Groundwater not encountered during boring activities.

Soil Boring Log

McLaren Hart

Boring No.	Project No./Name	Page:
WL-235	07.0803035.003.002	1 of 1

Start/Finish Date	Site Name and Location
9/20/95	West Lake Landfill; Bridgeton, Missouri

Drilling Contractor	Boring Location:	Area 2
Drilling Service Company	Ground Surface Elevation:	481.1
Driller	Northing:	1069615.23
Bruce Murphy	Easting:	514418.87

Drilling Equipment	McLaren/Hart Geologist/Office
LDH-80T Drill Rig, Large Diameter Auger	Tim Biggs / St. Louis

Bit Size/Type	Sample Method	T.D. Borehole	Well Installed?
24" OD Solid Auger	Grab from Augers	30'	None Installed

Remarks:

Depth (ft)	Sample ID #	Geiger Reading (mR/hr)	Description
5	WL-235 5'	Background (0.02-0.04)	0.0-30.0' Landfill Debris: trashy debris consisting of wood, metal, paper, wire, cloth, insulation, plastic, and glass; soil consisting of dark gray silty clay to clayey and silty, fine-grained sand; dry to wet.
10	WL-235 10'	Background (0.02-0.04)	
15	WL-235 15'	Background (0.02-0.04)	
20	None Taken	Background (0.02-0.04)	
25	None Taken	Background (0.02-0.04)	@ 25' wet
30	WL-235 30'	Background (0.02-0.04)	Boring abandoned @ 30.0'

Notes:

Radiological samples collected at 5 and 30 feet below ground surface; downhole logging indicated elevated gamma readings from 21.0-24.0'.

Non-radiological samples not collected during boring activities.

Perched water encountered at 25 feet below ground surface.

Groundwater not encountered during boring activities.

Soil Boring Log

McLaren Hart

Boring No.	Project No./Name	Page:
WL-236	07.0803035.003.002	1 of 1

Start/Finish Date	Site Name and Location
9/21/95	West Lake Landfill; Bridgeton, Missouri

Drilling Contractor	Boring Location:	Area 2
Drilling Service Company	Ground Surface Elevation:	484.3
Driller	Northing:	1069399.29
Bruce Murphy	Easting:	514384.13

Drilling Equipment	McLaren/Hart Geologist/Office
LDH-80T Drill Rig, Large Diameter Auger	Tim Biggs / St. Louis

Bit Size/Type	Sample Method	T.D. Borehole	Well Installed?
24" OD Solid Auger	Grab from Augers	37'	None Installed

Remarks:

Depth (ft)	Sample ID #	Geiger Reading (mR/hr)	Description
5	WL-236 5'	Background (0.01-0.04)	0.0-37.0' Landfill Debris: trashy debris consisting of wood, metal, paper, wire, carpeting, rubber, cloth, insulation, and plastic; soil consisting of dark gray clay to silty clay; dry to moist.
10	None Taken	Background (0.01-0.04)	
15	None Taken	Background (0.01-0.04)	
20	None Taken	Background (0.01-0.04)	
25	None Taken	Background (0.01-0.04)	
30	WL-236 30'	Background (0.01-0.04)	
35	WL-236 35'	Background (0.01-0.04)	@ 35' wet
40	None Taken	Background (0.01-0.04)	Auger refusal @ 37.0'

Notes:

Radiological samples collected at 5 and 35 feet below ground surface.

Non-radiological samples not collected during boring activities.

Perched water not encountered during boring activities.

Groundwater encountered at 35 feet below ground surface.

Soil Boring Log

McLaren Hart

Boring No.	Project No./Name	Page:
WL-237	07.0803035.003.002	1 of 1

Start/Finish Date	Site Name and Location
9/22/95	West Lake Landfill; Bridgeton, Missouri

Drilling Contractor	Boring Location:	Area 2
Drilling Service Company	Ground Surface Elevation:	473.9
Driller	**Northing:**	1070069.42
Bruce Murphy	**Easting:**	515161.88

Drilling Equipment	McLaren/Hart Geologist/Office
LDH-80T Drill Rig, Large Diameter Auger	Tim Biggs / St. Louis

Bit Size/Type	Sample Method	T.D. Borehole	Well Installed?
24" OD Solid Auger	Grab from Augers	40'	None Installed

Remarks:

Depth (ft)	Sample ID #	Geiger Reading (mR/hr)	Description
5	None Taken	Background (0.02)	0.0-34.0' Landfill Debris: trashy debris consisting of wood, medical waste, plastic, concrete, brick, metal, and paper; soil consisting of brown silt, dark gray fine-grained sand, and crushed rock; dry to moist. @ 10' OVM readings greater than 10 X background.
10	None Taken	Background (0.02)	
15	None Taken	Background (0.02)	
20	None Taken	Background (0.02)	
25	None Taken	Background (0.02)	
30	None Taken	Background (0.02)	
35	None Taken	Background (0.02)	34.0-40.0' Native Alluvium: dark gray plastic clay grading to clayey silt; moist.
40	None Taken	Background (0.02)	Boring terminated @ 40.0'

Notes:

Radiological samples not collected during boring activities.

Non-radiological samples not collected during boring activities.

Perched water not encountered during boring activities.

Groundwater not encountered during boring activities.

Soil Boring Log

McLaren Hart

Boring No.	Project No./Name	Page:
WL-238	07.0803035.003.002	1 of 1

Start/Finish Date	Site Name and Location
9/22/95	West Lake Landfill; Bridgeton, Missouri

Drilling Contractor	Boring Location:	Area 2
Drilling Service Company	Ground Surface Elevation:	466.2
Driller	Northing:	1070705.96
Bruce Murphy	Easting:	514916.28

Drilling Equipment	McLaren/Hart Geologist/Office
LDH-80T Drill Rig, Large Diameter Auger	Tim Biggs / St. Louis

Bit Size/Type	Sample Method	T.D. Borehole	Well Installed?
24" OD Solid Auger	Grab from Augers	34'	None Installed

Remarks:

Depth (ft)	Sample ID #	Geiger Reading (mR/hr)	Description
5	None Taken	Background (0.04)	0.0-27.0' Landfill Debris: trashy debris consisting of wood, shredded tires, and wire; soil consisting of brown silt and dark gray fine-grained sand; dry to moist. @ 10.0-25.0' soil discolored; petroleum odor; OVM reading greater than 10 X background.
10	None Taken	Background (0.04)	
15	None Taken	Background (0.04)	
20	None Taken	Background (0.04)	
25	None Taken	Background (0.04)	
30	None Taken	None Taken	27.0-34.0' Native Alluvium: dark gray fine-grained sand; moist to wet.
35	None Taken	Background (0.04)	@ 34' wet Boring terminated @ 34.0'

Notes:

Radiological samples not collected during boring activities; downhole logging indicated elevated gamma readings from 3.5-9.0'.

Non-radiological samples not collected during boring activities.

Perched water not encountered during boring activities.

Groundwater encountered at 34 feet below ground surface.

Soil Boring Log

McLaren Hart

Boring No.	Project No./Name	Page:
WL-240	07.0803035.003.002	1 of 1

Start/Finish Date	Site Name and Location
9/28/95	West Lake Landfill; Bridgeton, Missouri

Drilling Contractor	Boring Location:	Area 2
Drilling Service Company	Ground Surface Elevation:	468.5
Driller	Northing:	1070320.97
Bruce Murphy	Easting:	515315.69

Drilling Equipment	McLaren/Hart Geologist/Office
LDH-80T Drill Rig, Large Diameter Auger	Tim Biggs / St. Louis

Bit Size/Type	Sample Method	T.D. Borehole	Well Installed?
24" OD Solid Auger	Grab from Augers	11'	None Installed

Remarks:

Depth (ft)	Sample ID #	Geiger Reading (mR/hr)	Description
5	WL-240 5'	Background (0.01-0.04)	0.0-11.0' Landfill Debris: trashy debris consisting of plastic and wood; soil consisting of dark gray silty clay and crushed rock; dry to wet.
10	None Taken	Background (0.01-0.04)	@ 4.5' wet
15	None Taken	Background (0.01-0.04)	Boring abandoned @ 11.0'

Notes:

Radiological samples not collected during boring activities.

Non-radiological samples not collected during boring activities.

Perched water encountered at 4.5 feet below ground surface.

Groundwater not encountered during boring activities.

Soil Boring Log

McLaren Hart

Boring No.	Project No./Name	Page:
WL-241	07.0803035.003.002	1 of 1

Start/Finish Date	Site Name and Location
9/28/95	West Lake Landfill; Bridgeton, Missouri

Drilling Contractor	Boring Location:	Area 2
Drilling Service Company	Ground Surface Elevation:	469.6
Driller	Northing:	1070319.84
Bruce Murphy	Easting:	515100.73

Drilling Equipment	McLaren/Hart Geologist/Office
LDH-80T Drill Rig, Large Diameter Auger	Tim Biggs / St. Louis

Bit Size/Type	Sample Method	T.D. Borehole	Well Installed?
24" OD Solid Auger	Grab from Augers	40'	None Installed

Remarks:

Depth (ft)	Sample ID #	Geiger Reading (mR/hr)	Description
5	WL-241 5'	Background (0.01-0.04)	0.0-40.0' Landfill Debris: trashy debris consisting of glass, insulation, wood, cardboard, paper, wire, rubber, plastic, and wood; soil consisting of dark gray clay and silty clay to silty fine-grained sand, and crushed rock; dry to wet.
10	WL-241 10'	Background (0.01-0.04)	
15	WL-241 15'	Background (0.01-0.04)	
20	WL-241 20'	Background (0.01-0.04)	
25	WL-241 25'	Background (0.01-0.04)	
30	WL-241 30'	Background (0.01-0.04)	
35	WL-241 35'	Background (0.01-0.04)	
40	WL-241 40'	Background (0.01-0.04)	@ 40' wet Boring abandoned @ 40.0'

Notes:

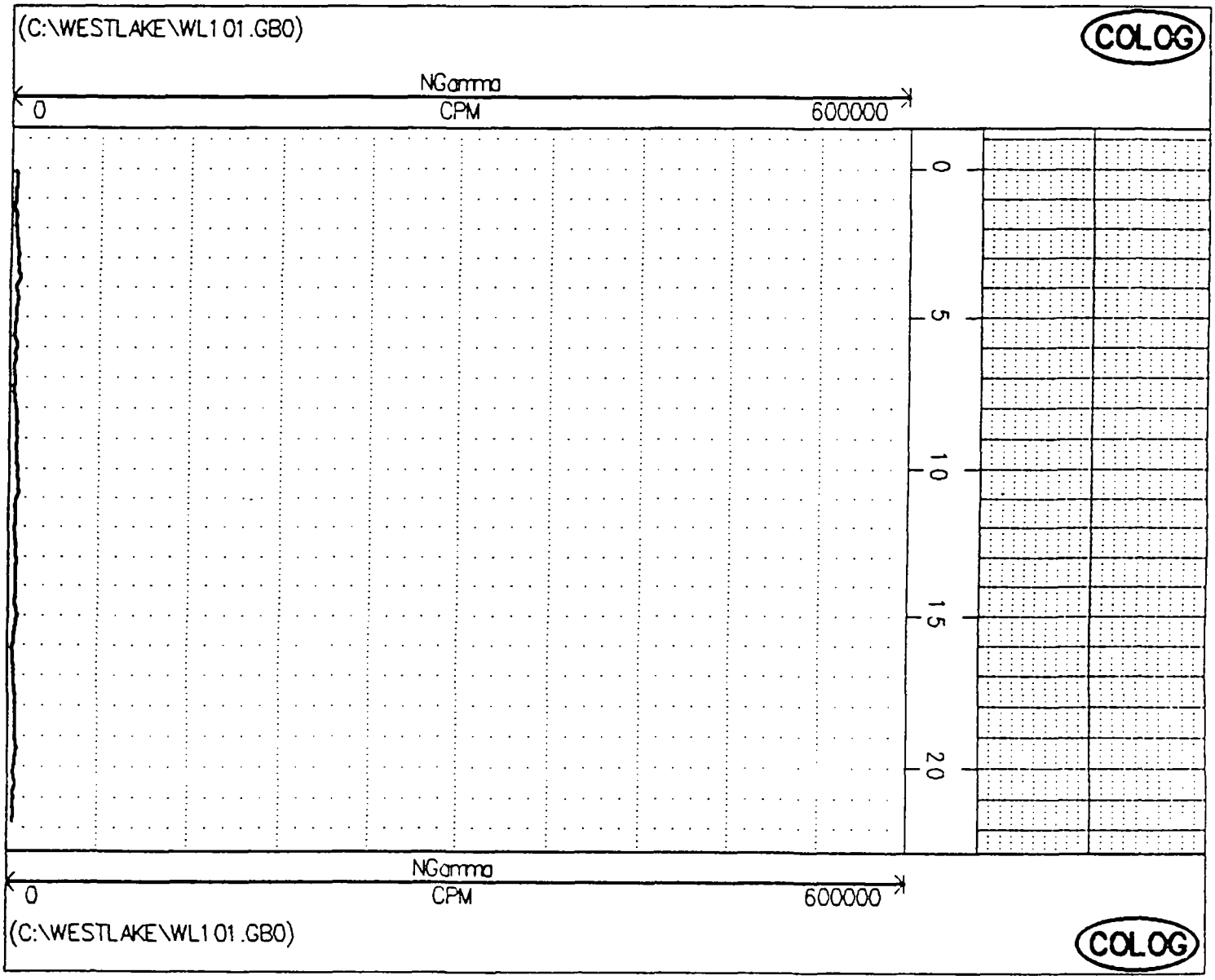
Radiological samples collected at 5 and 15 feet below ground surface; downhole logging indicated elevated gamma readings from 4.0-8.5'.

Non-radiological samples not collected during boring activities.

Perched water not encountered during boring activities.

Groundwater encountered at 40 feet below ground surface.

Area 1 Soil Boring
Downhole Gamma Logs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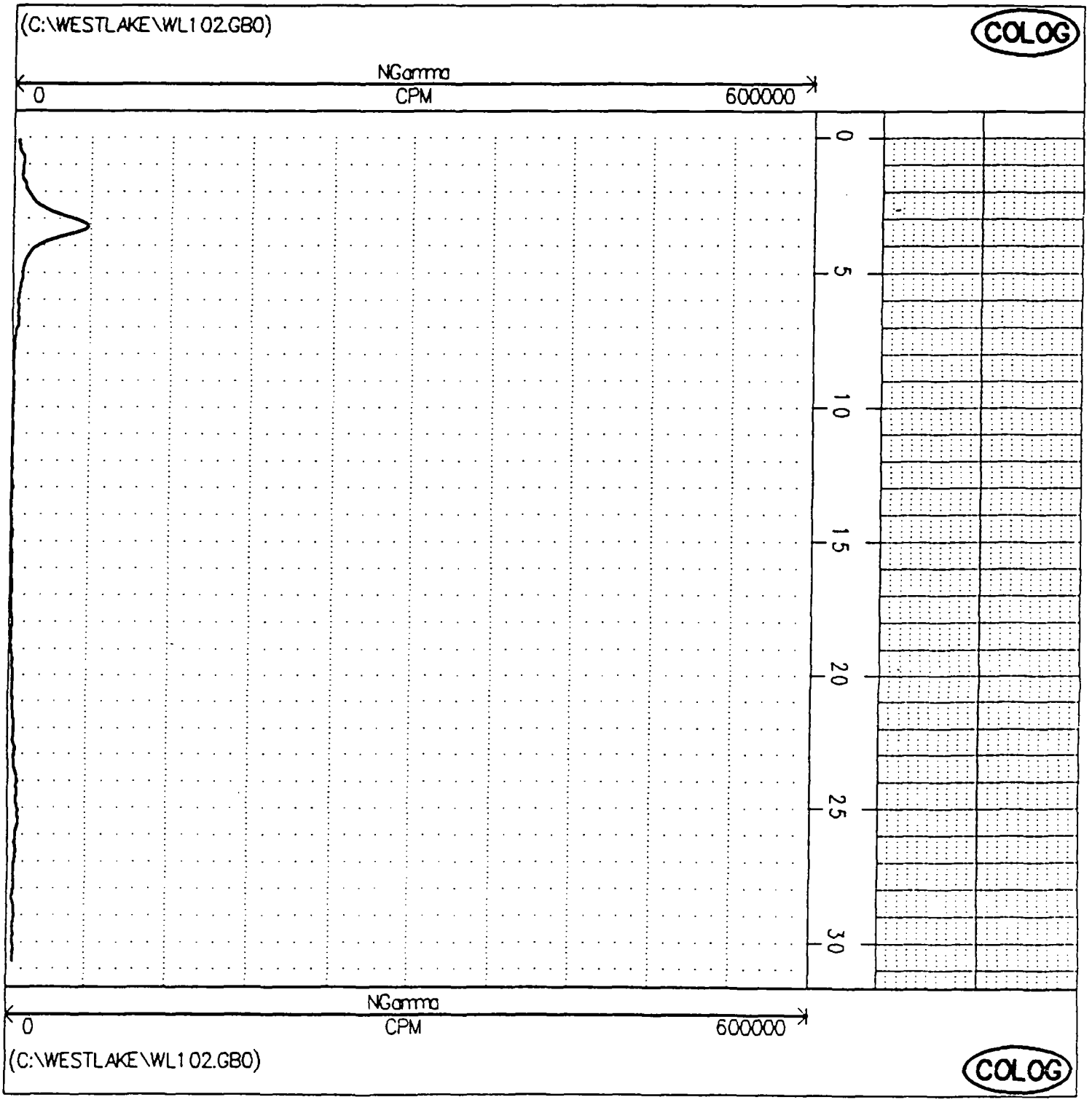
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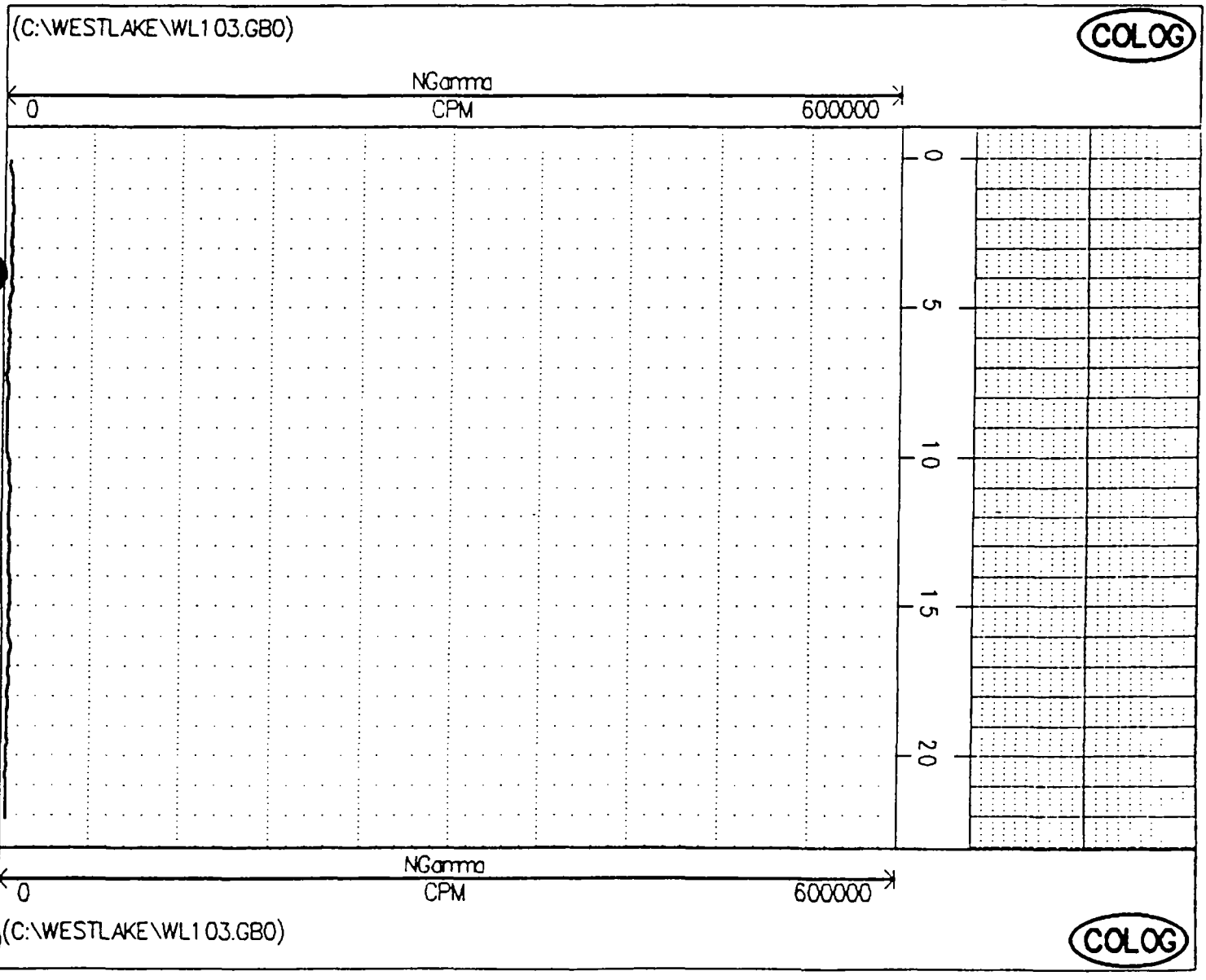
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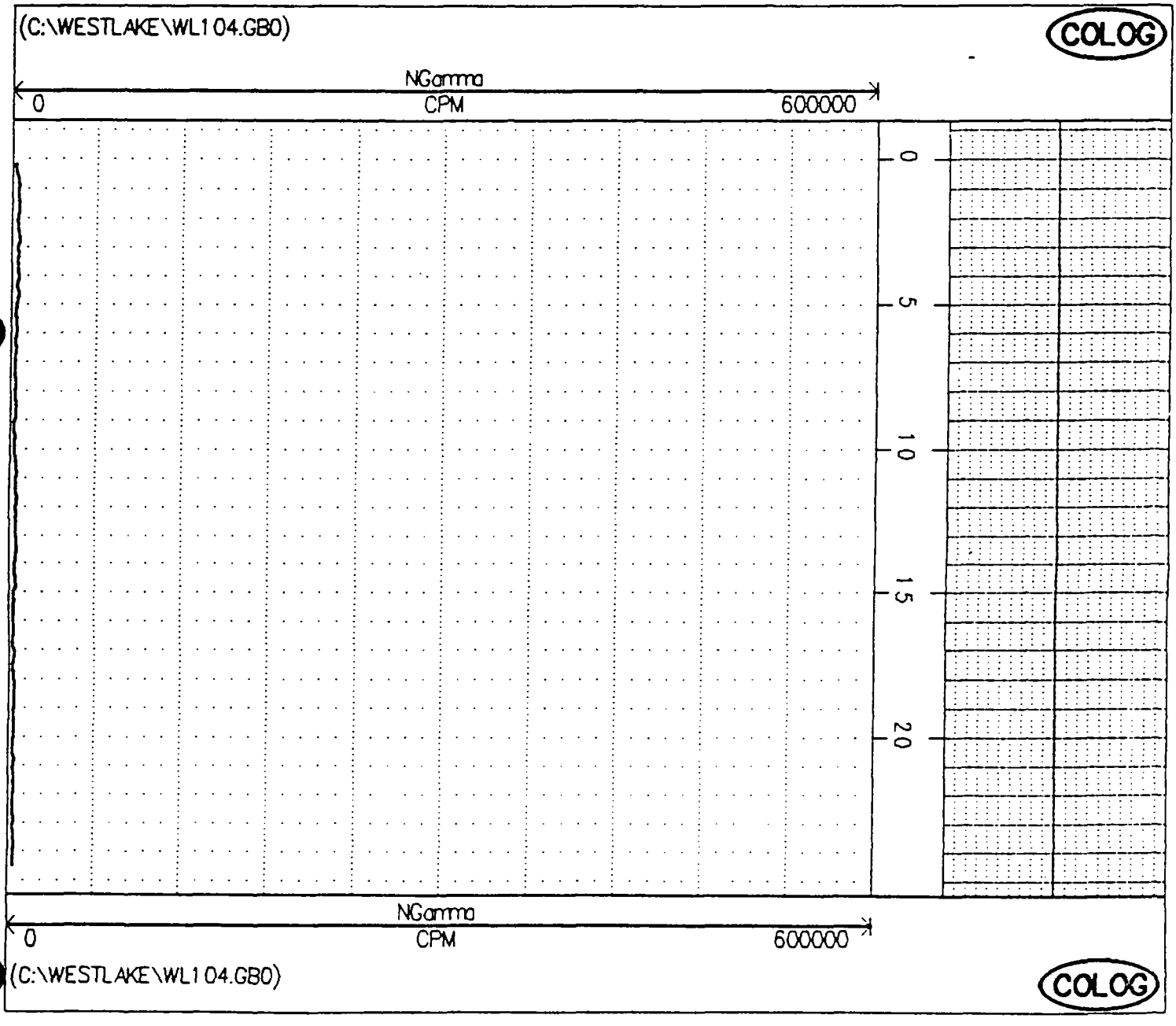
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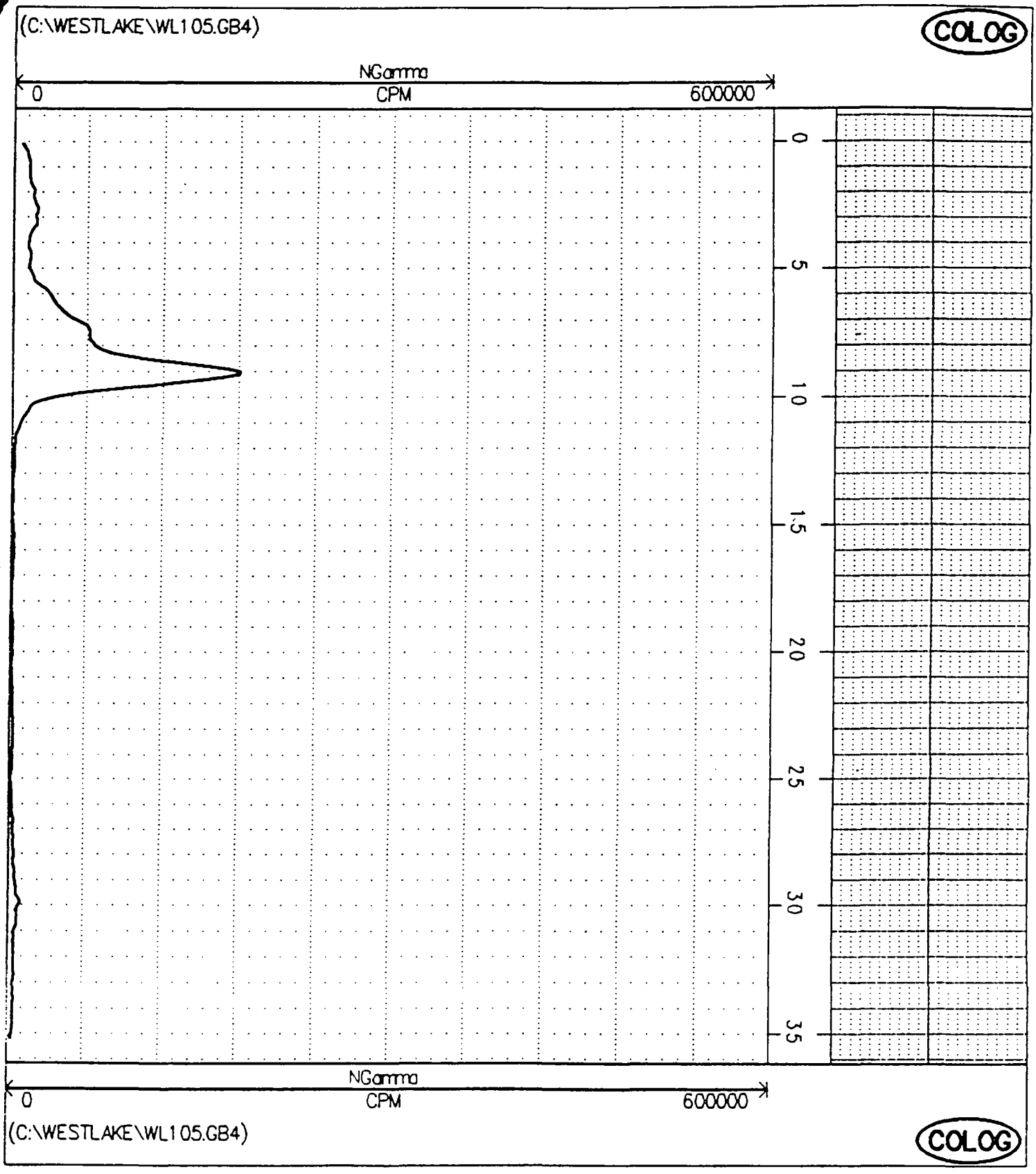
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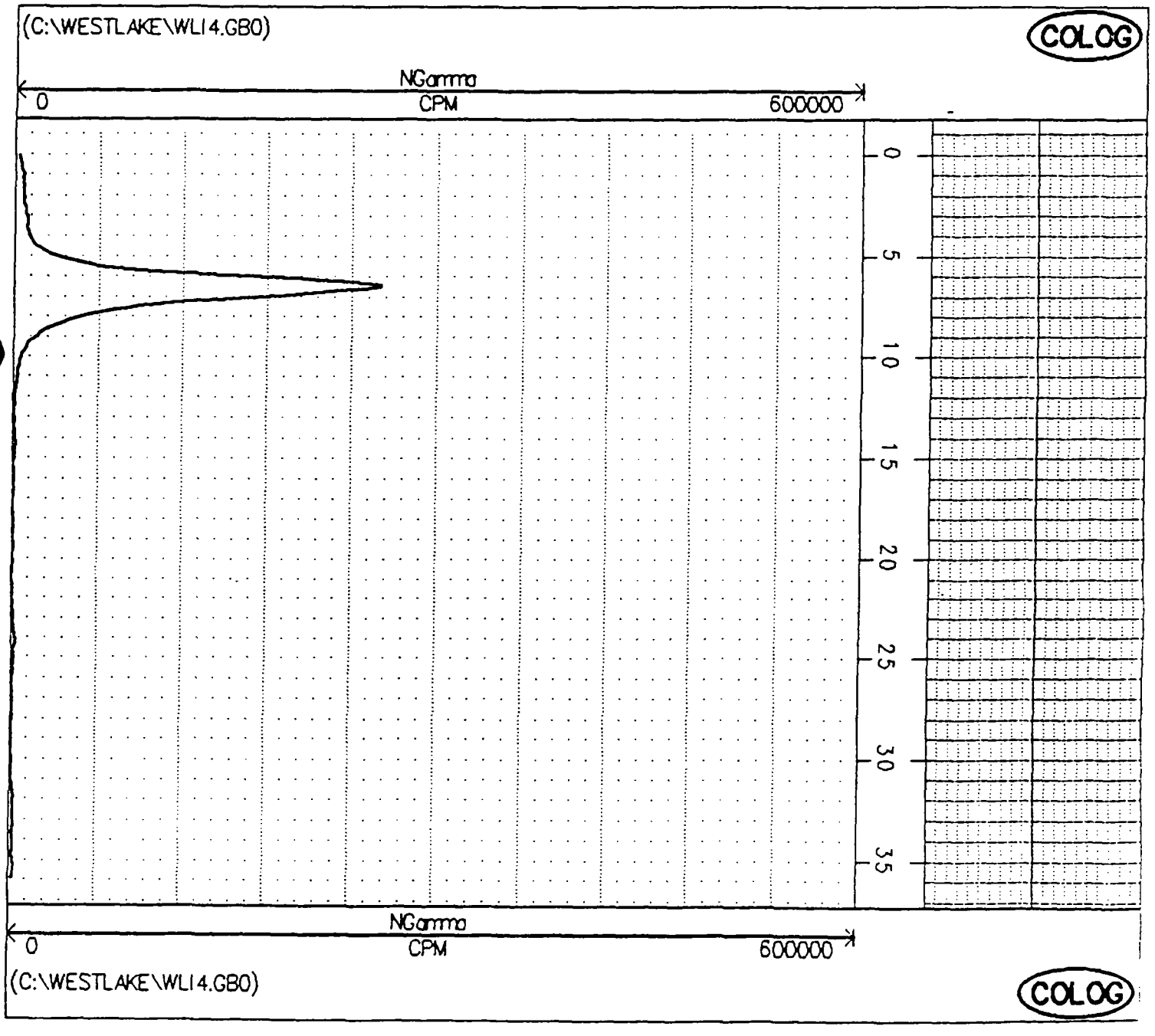
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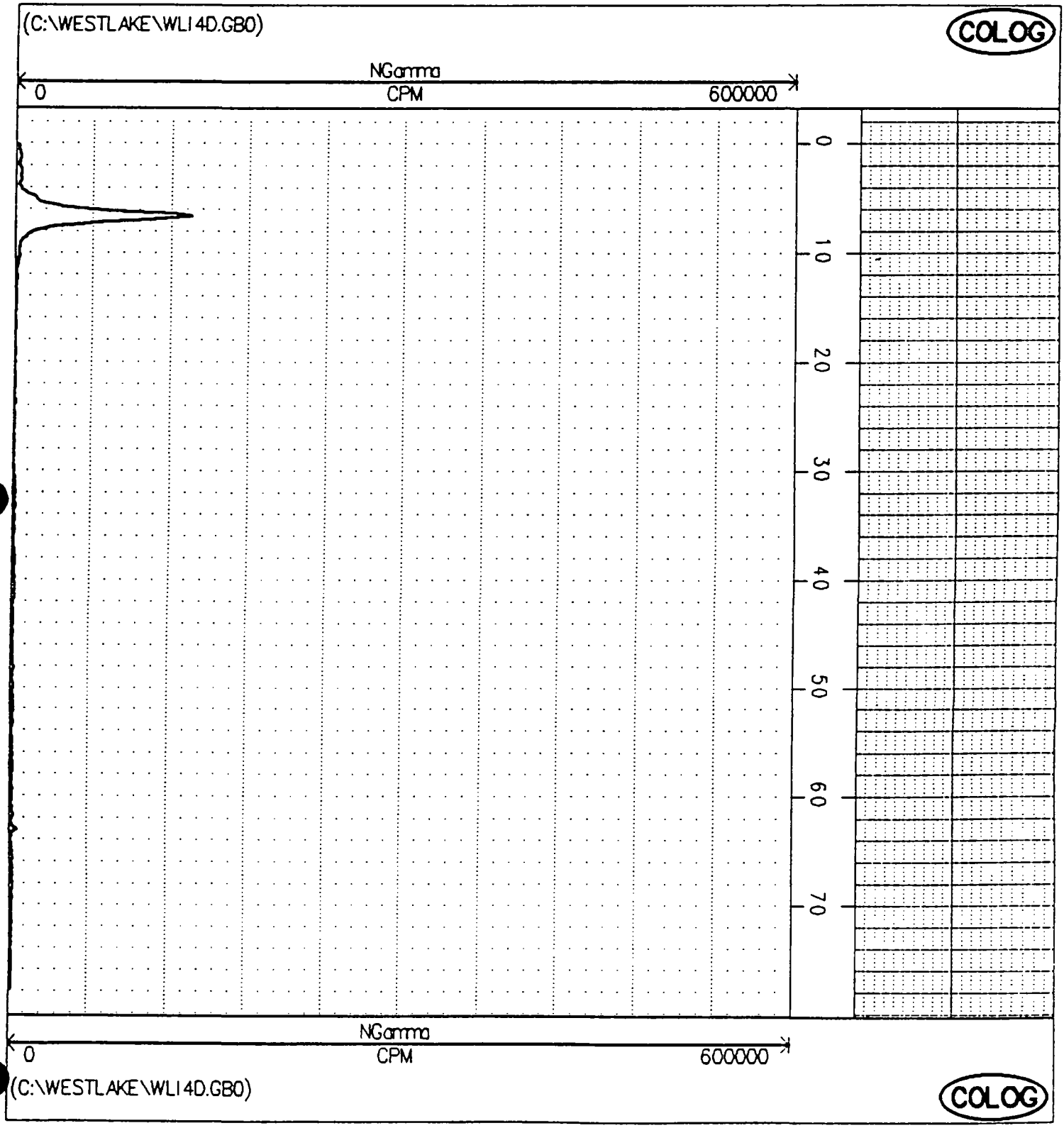
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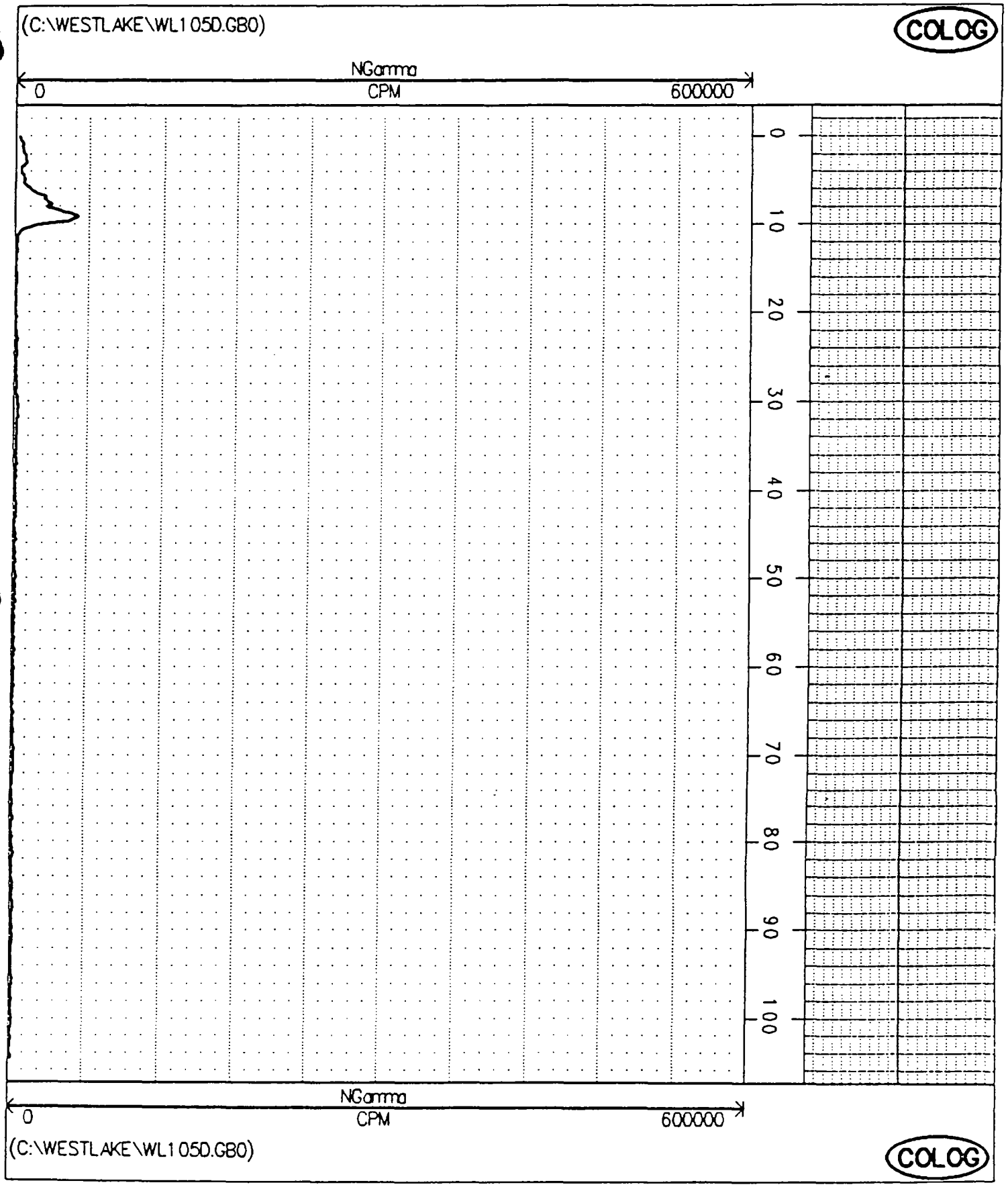
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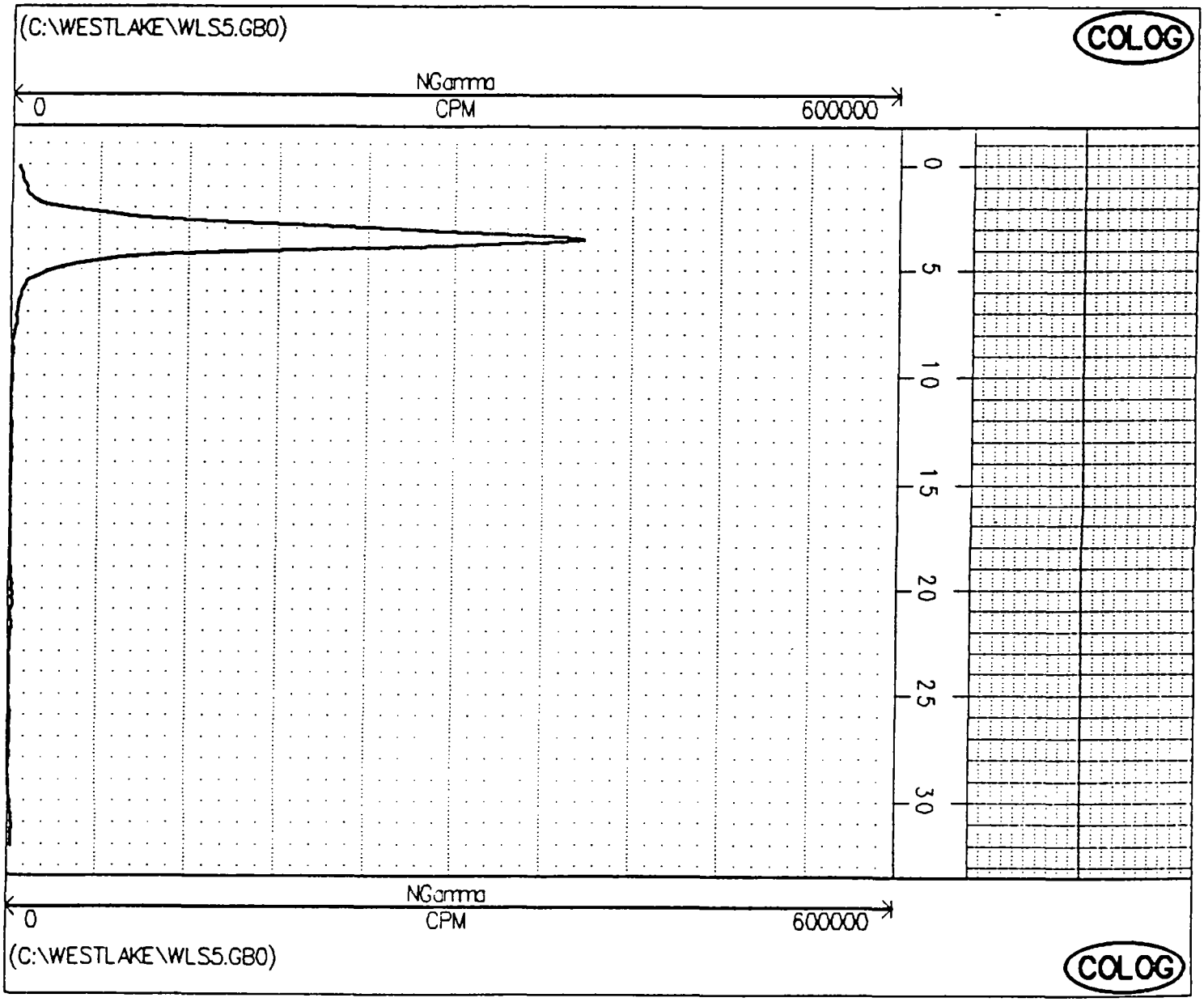
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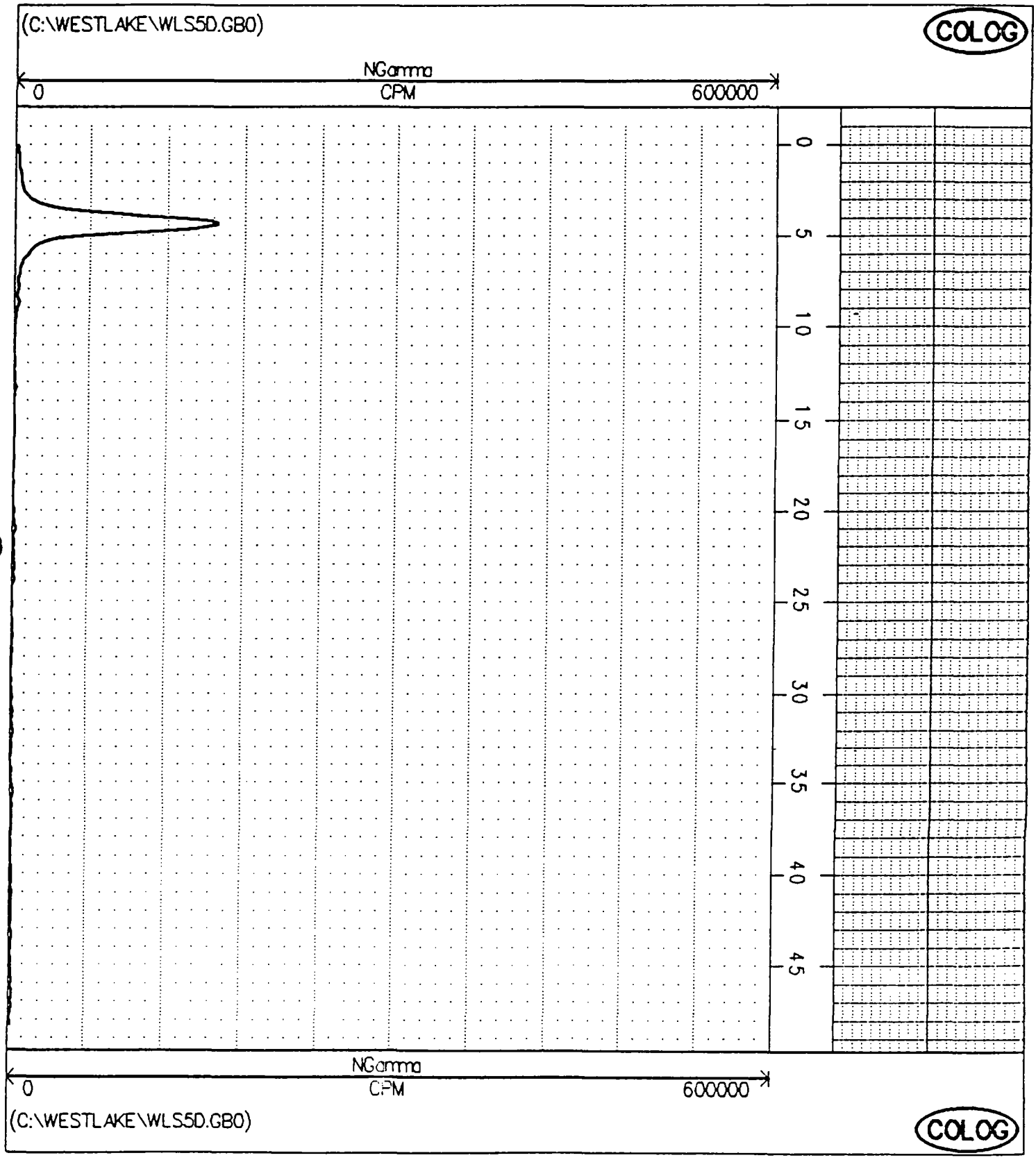
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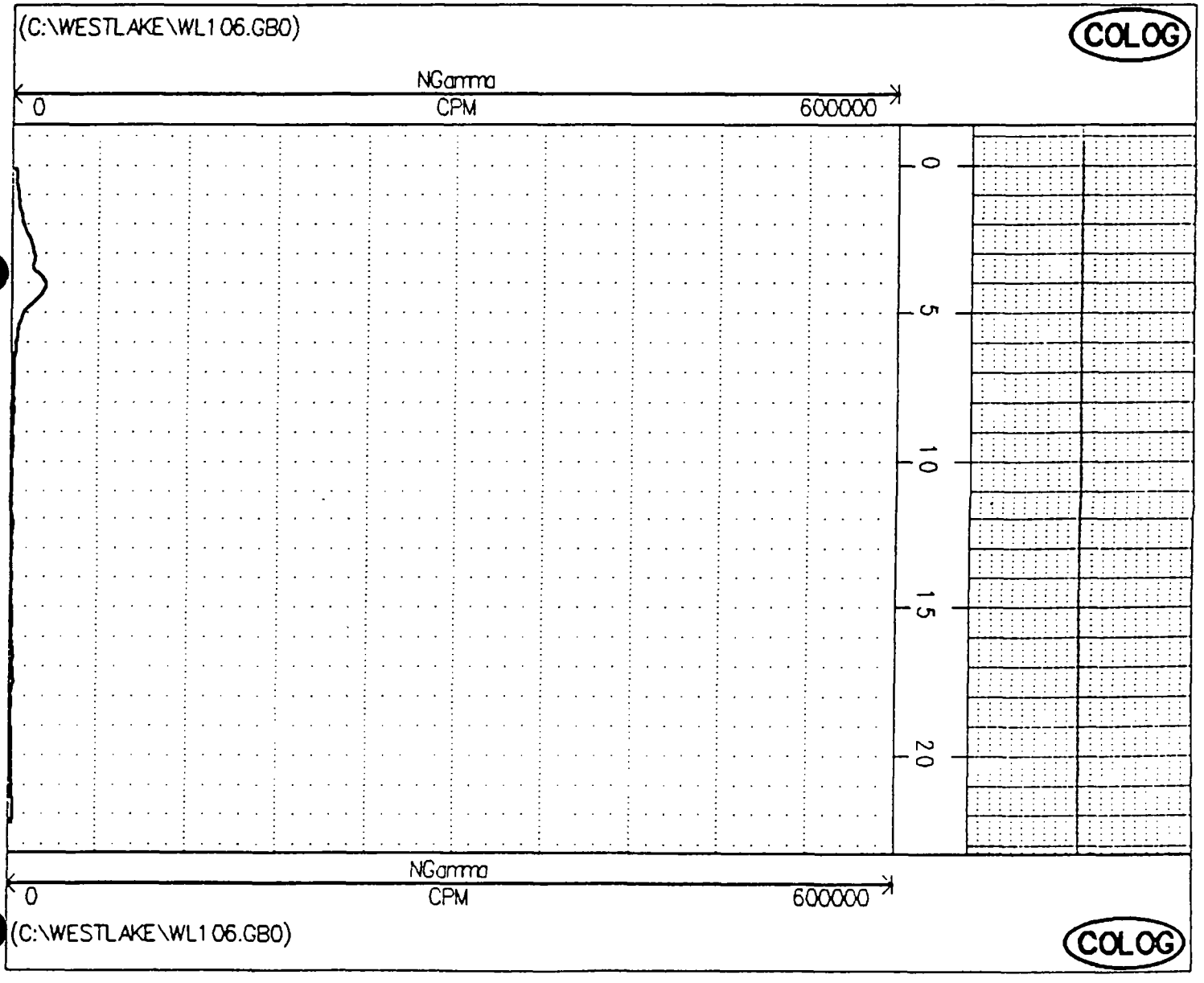
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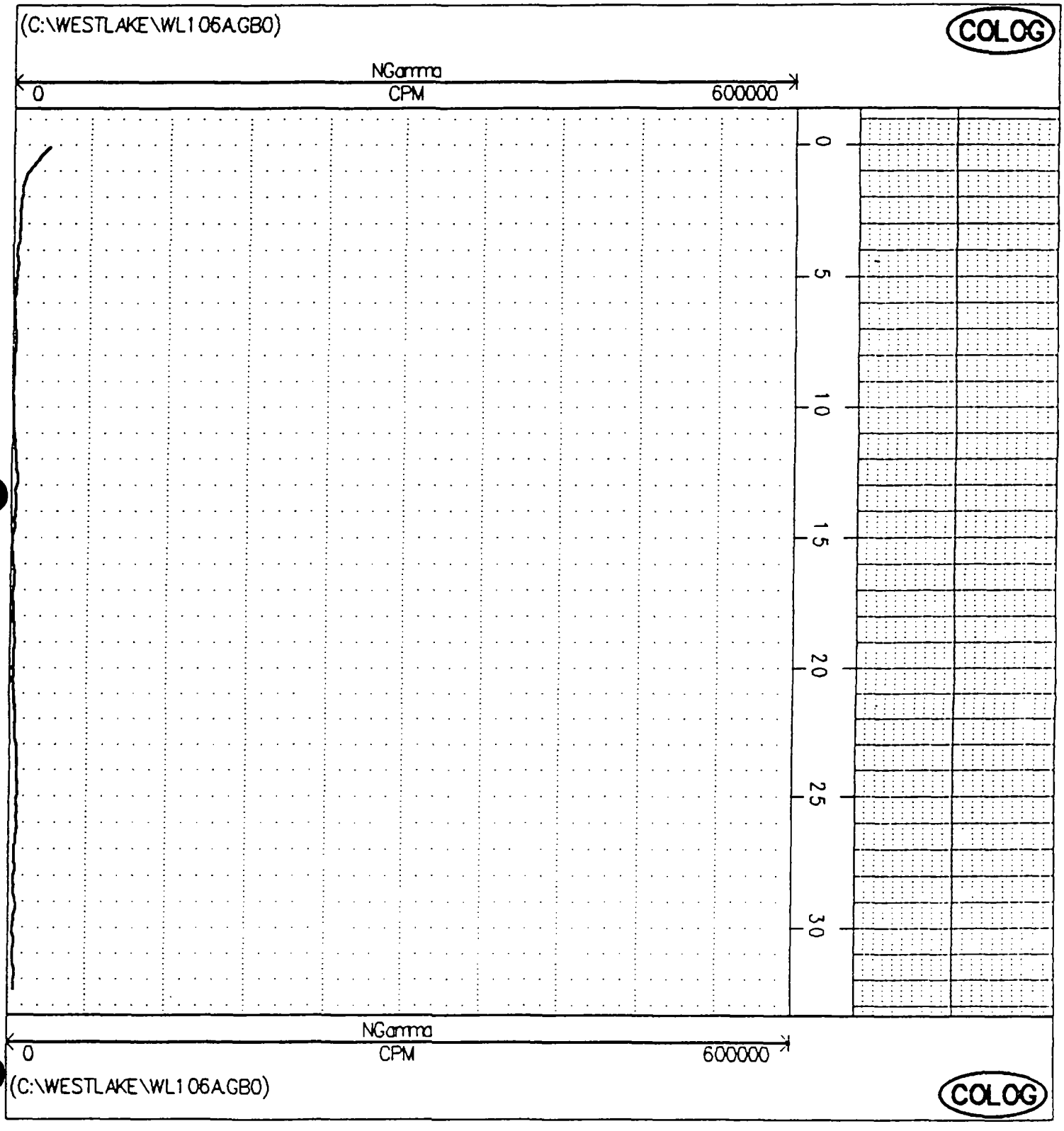
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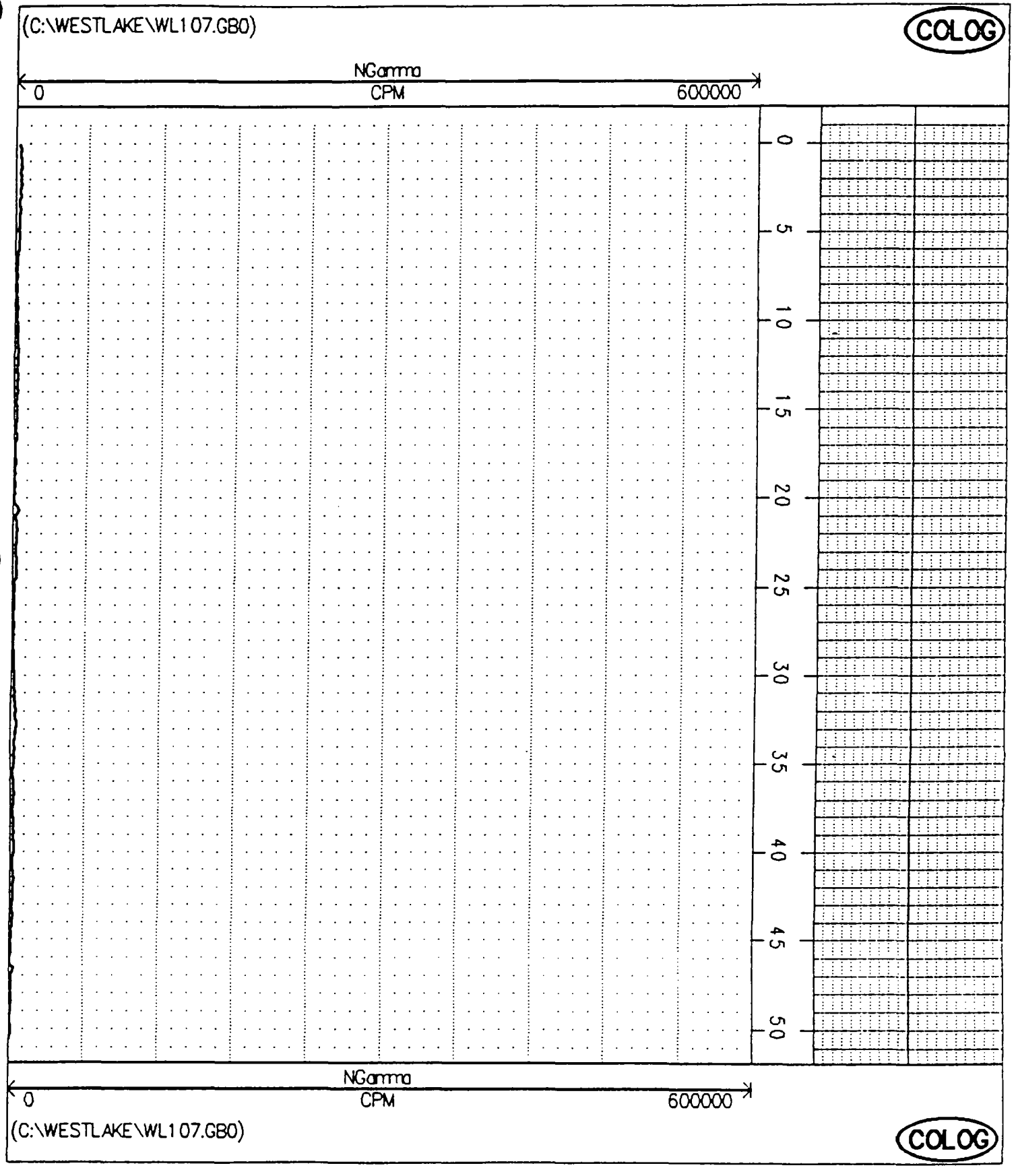
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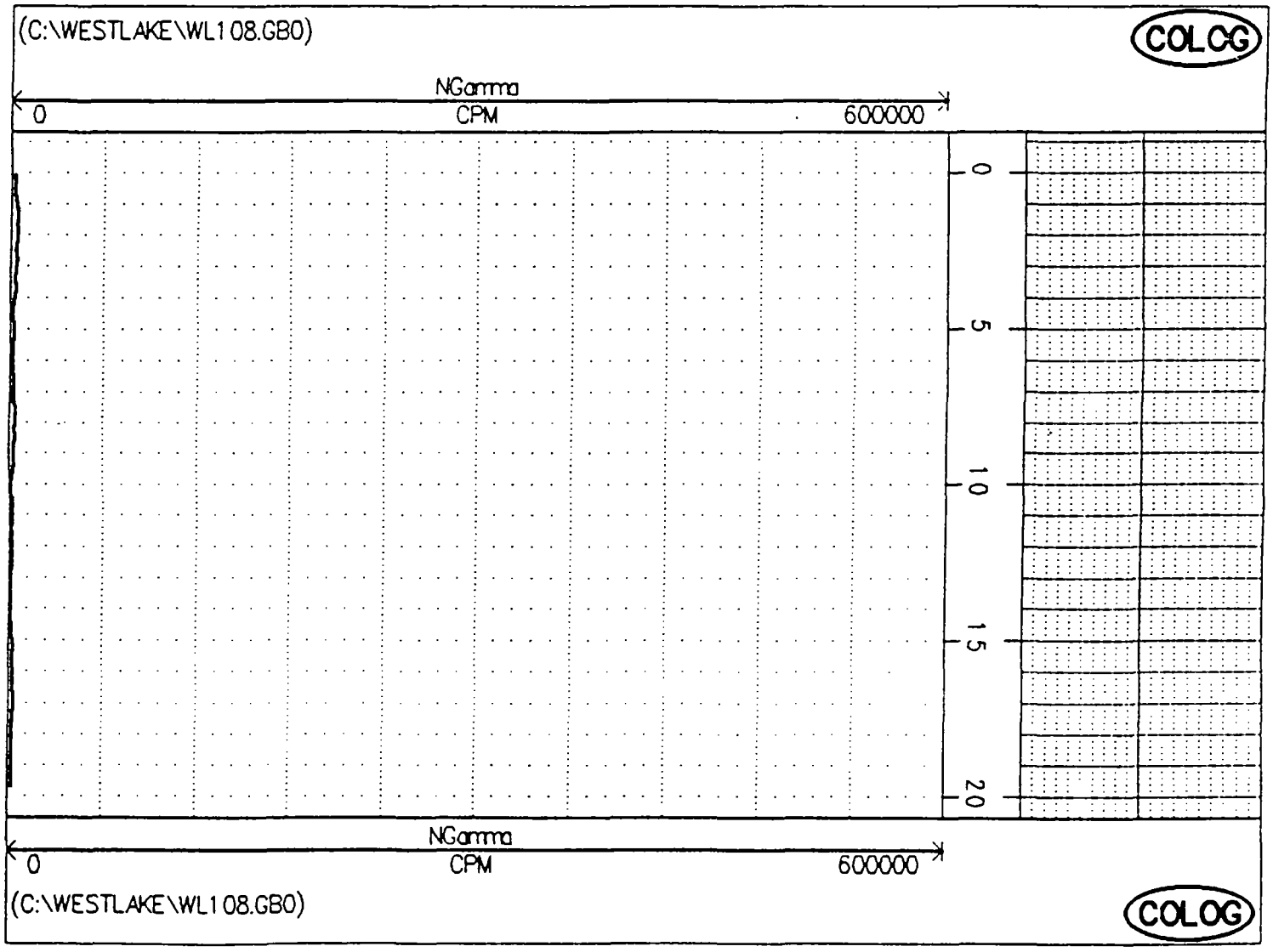
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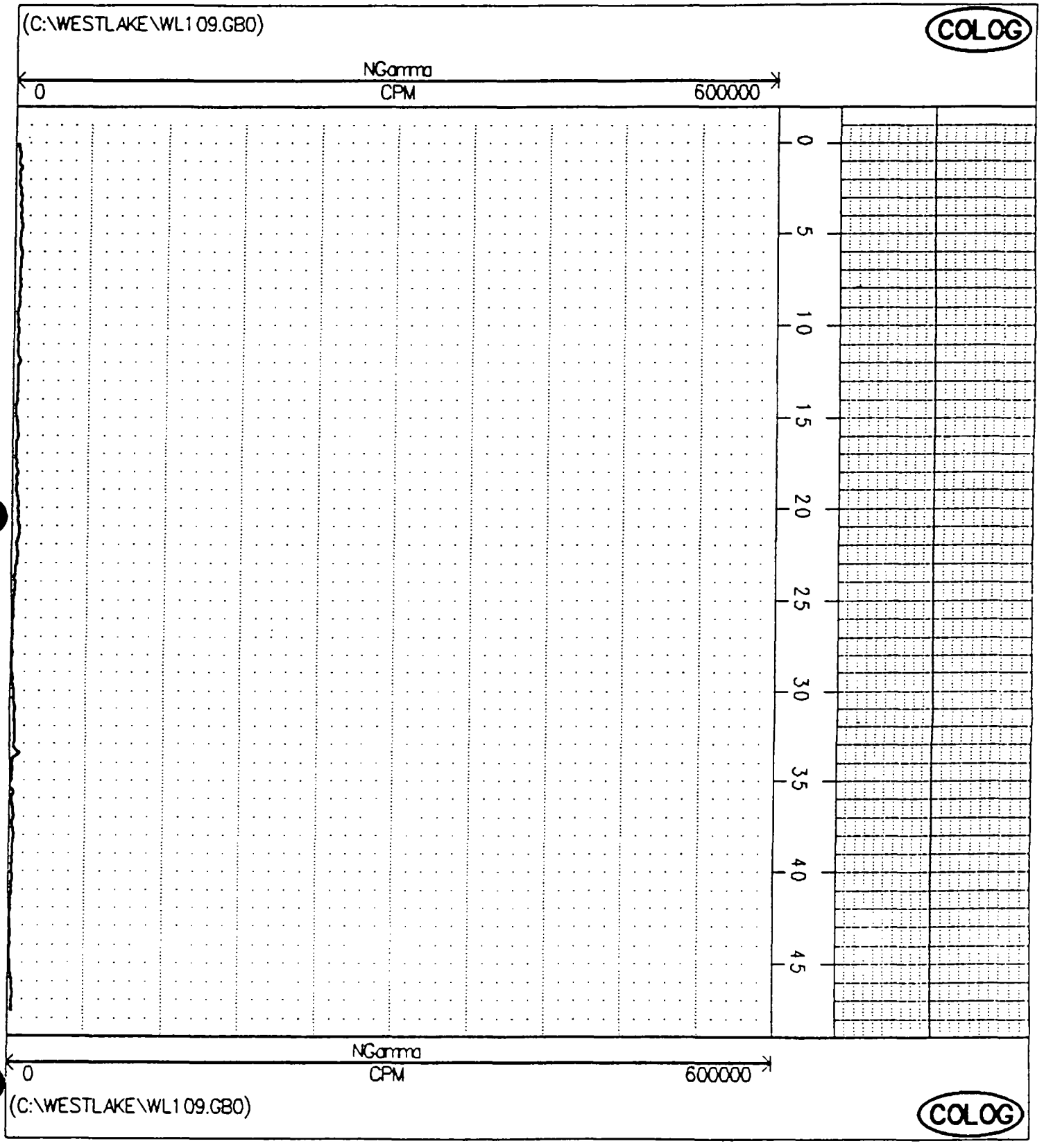
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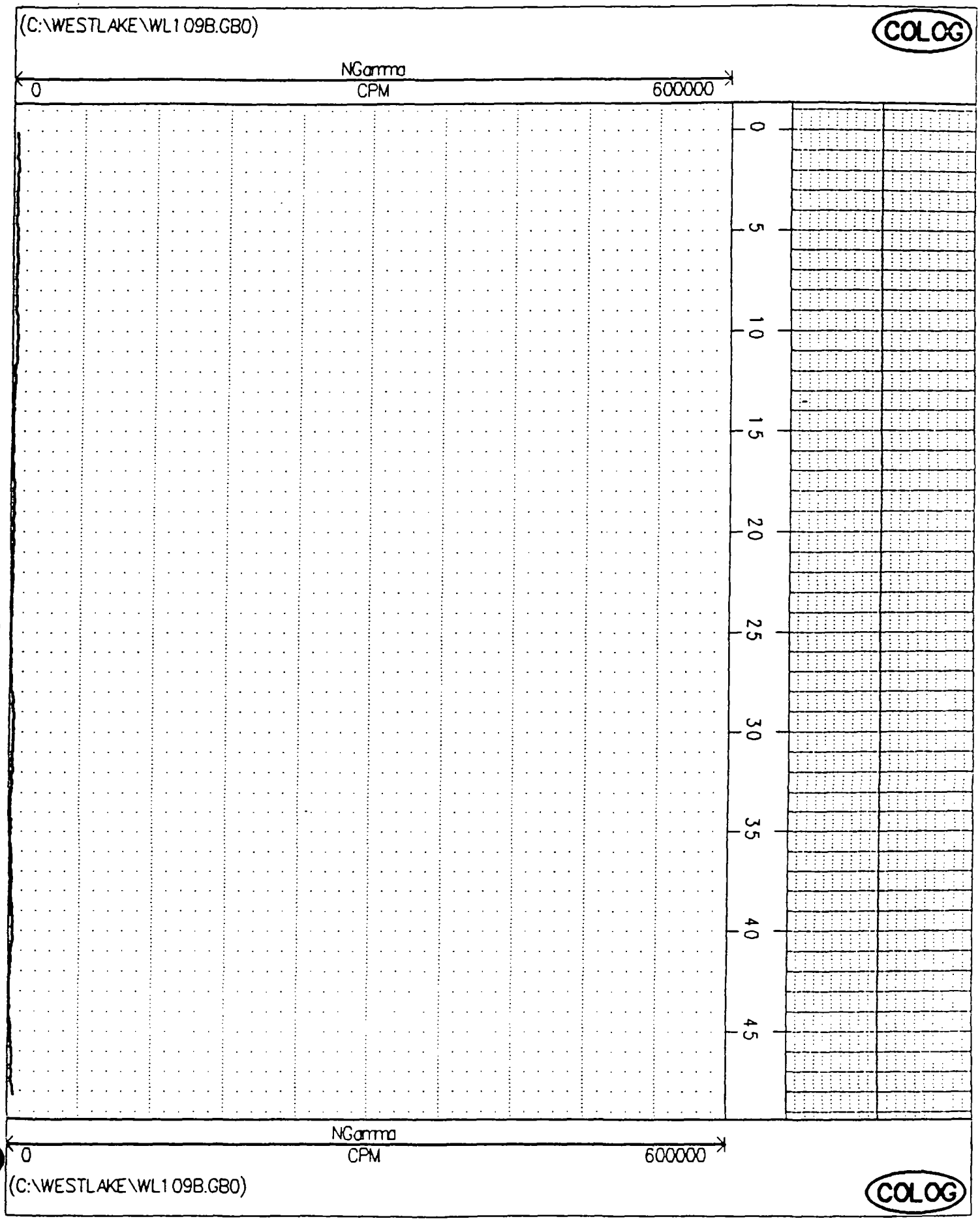
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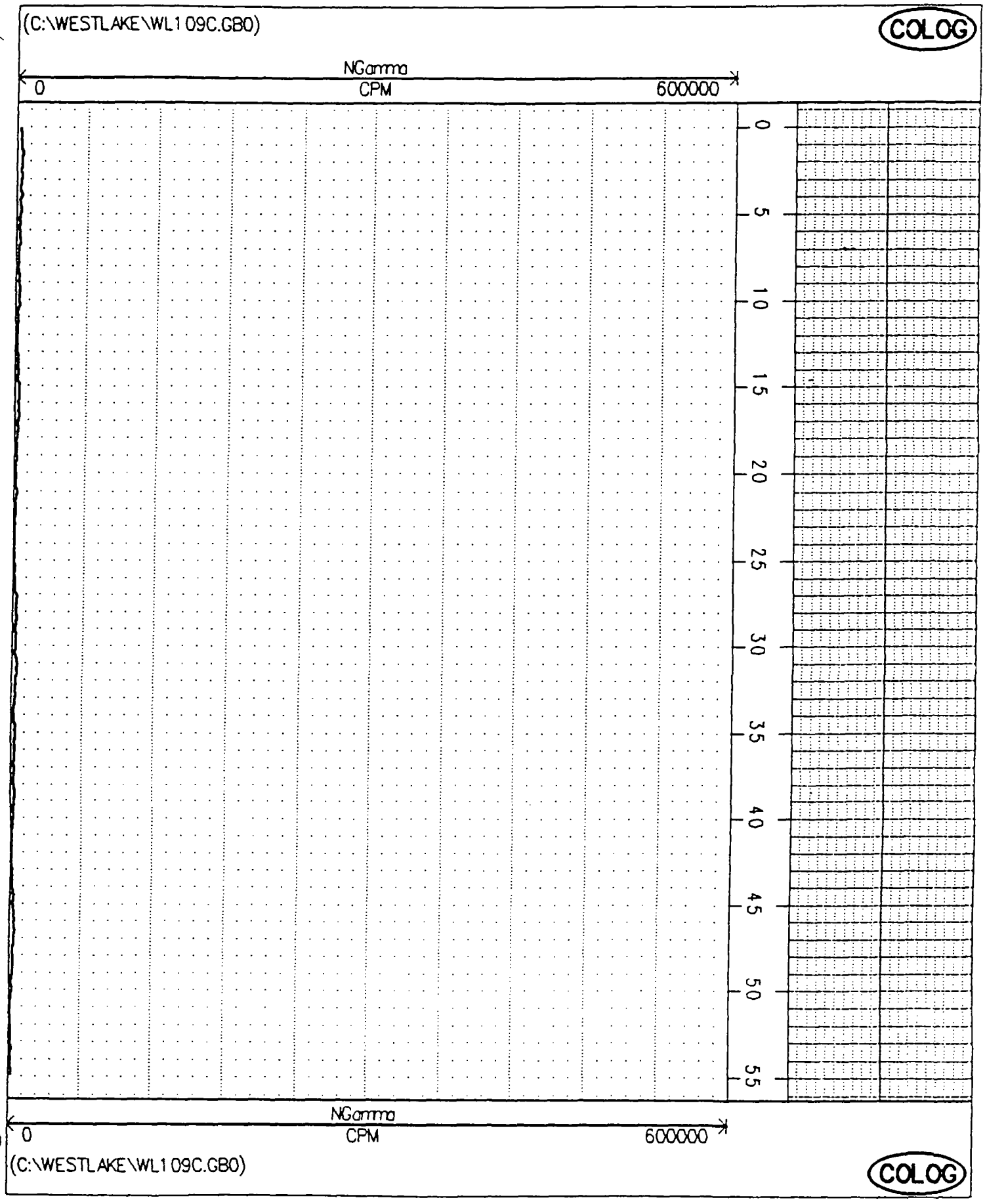
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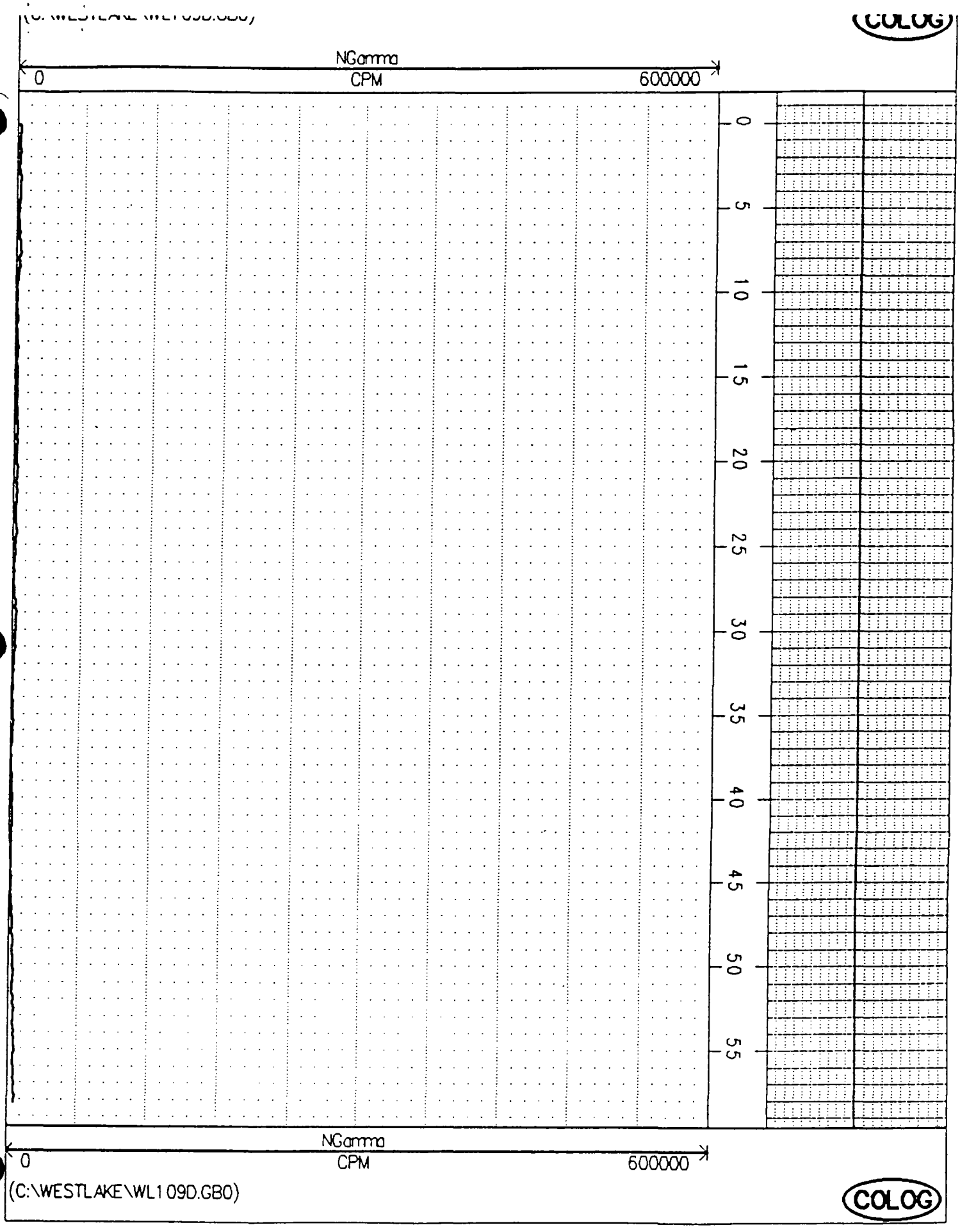
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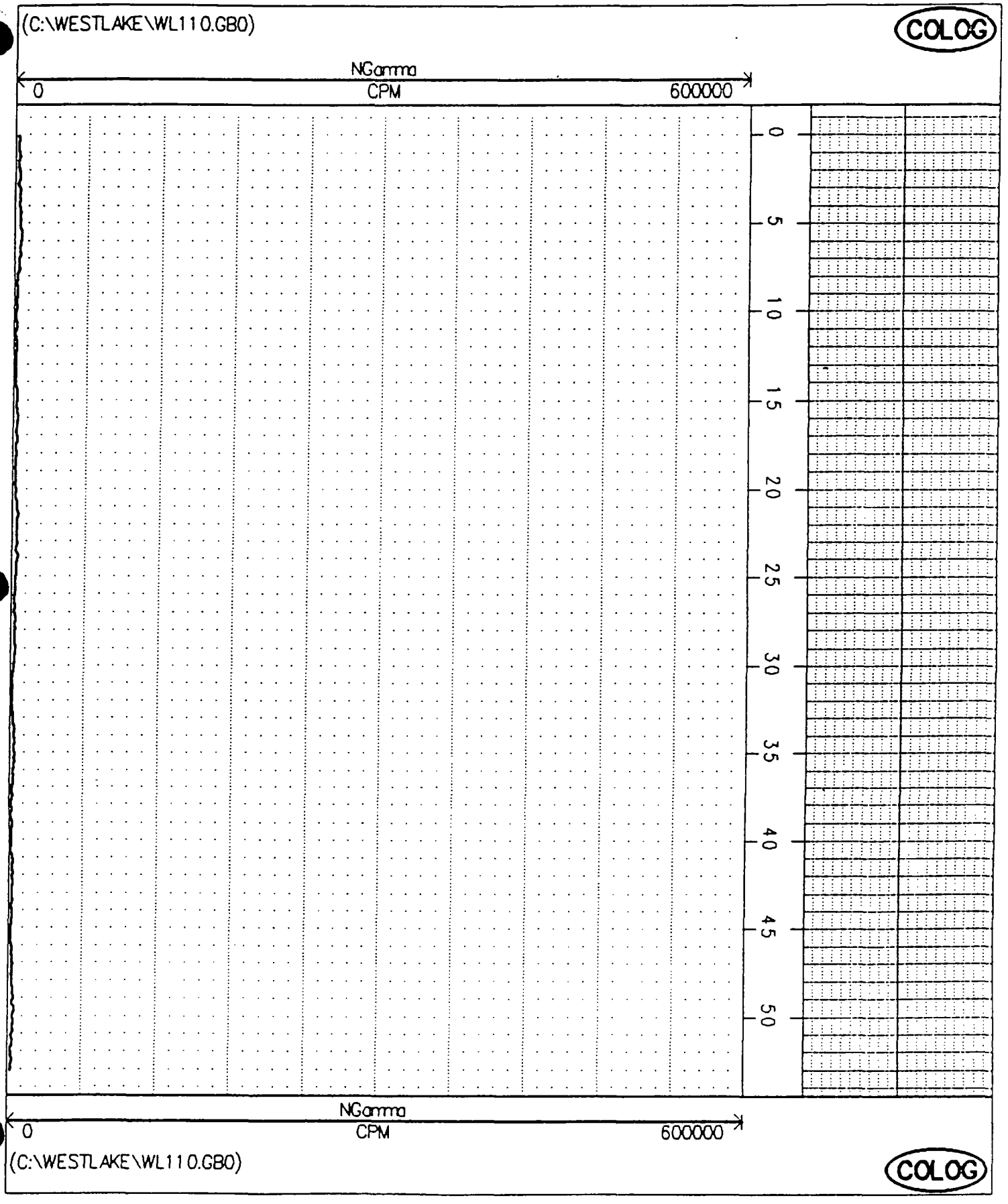
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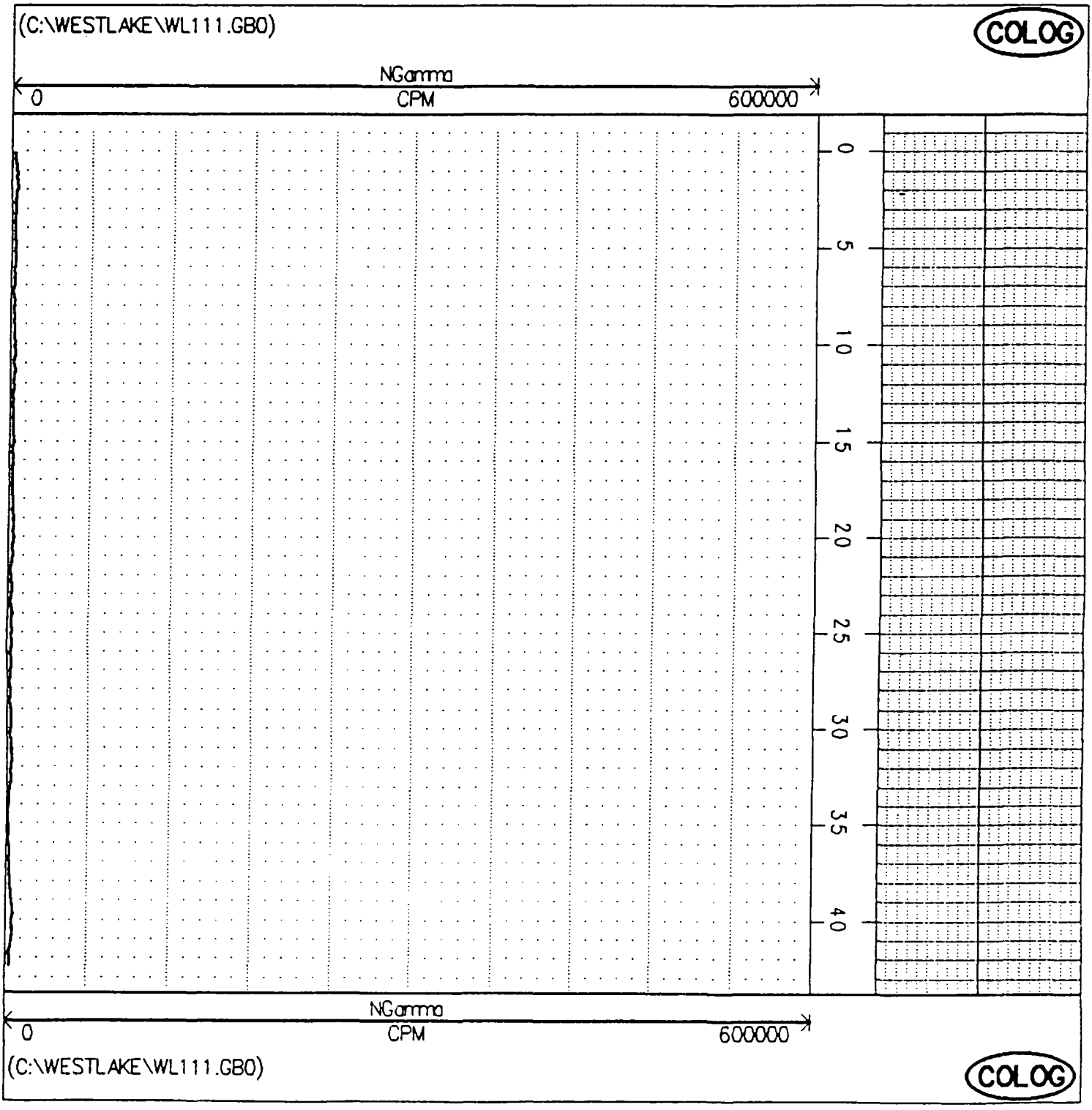
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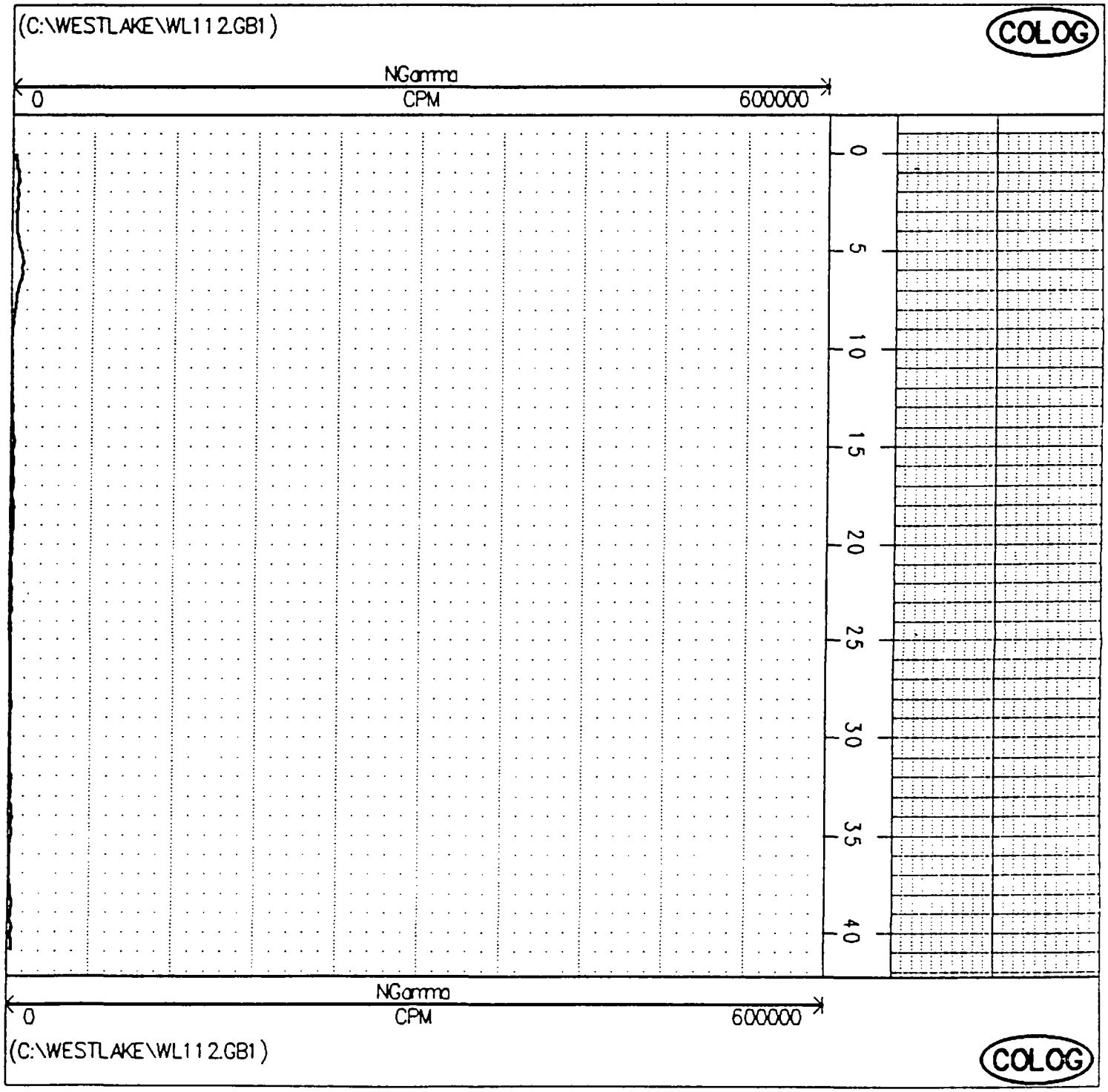
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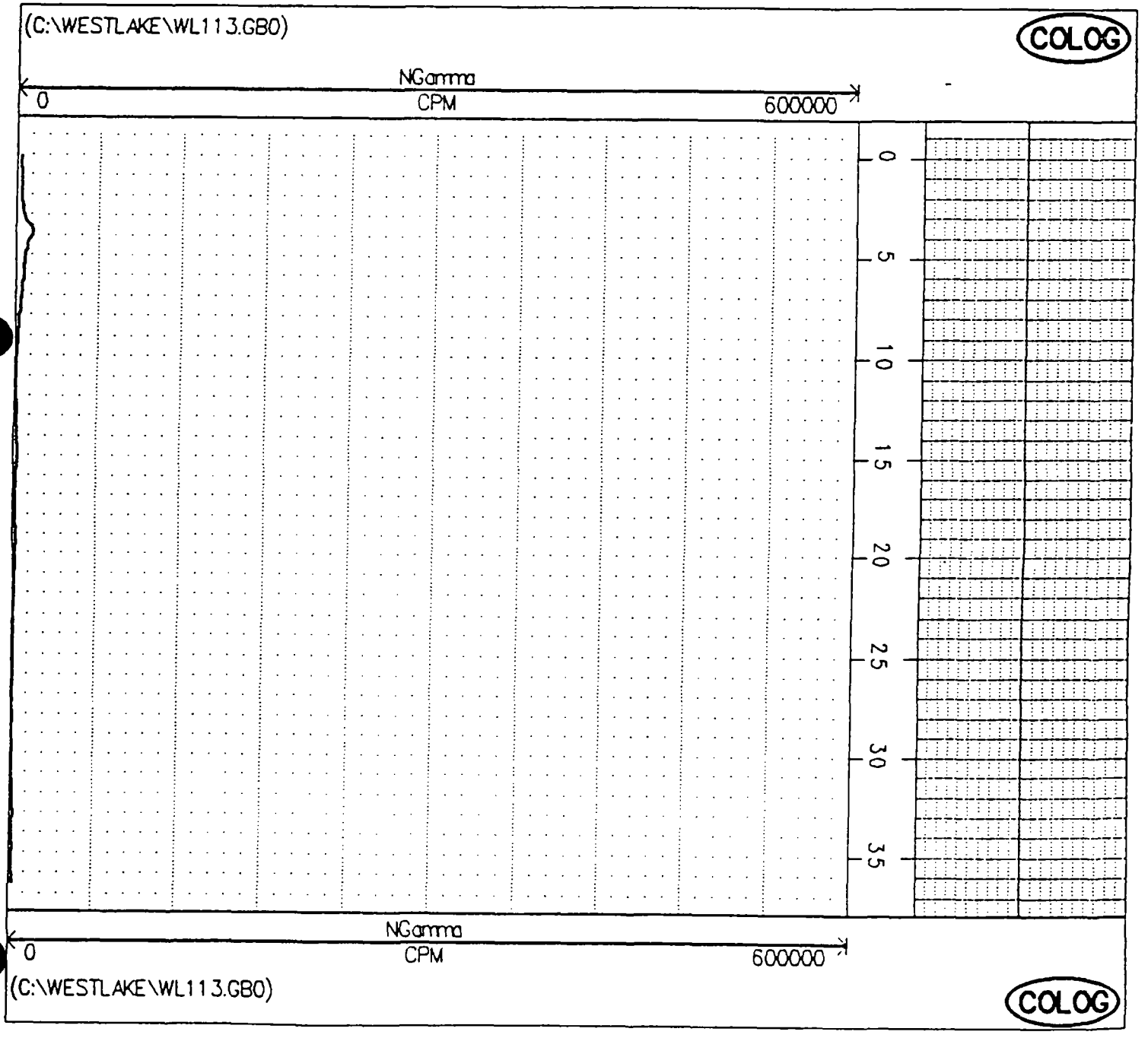
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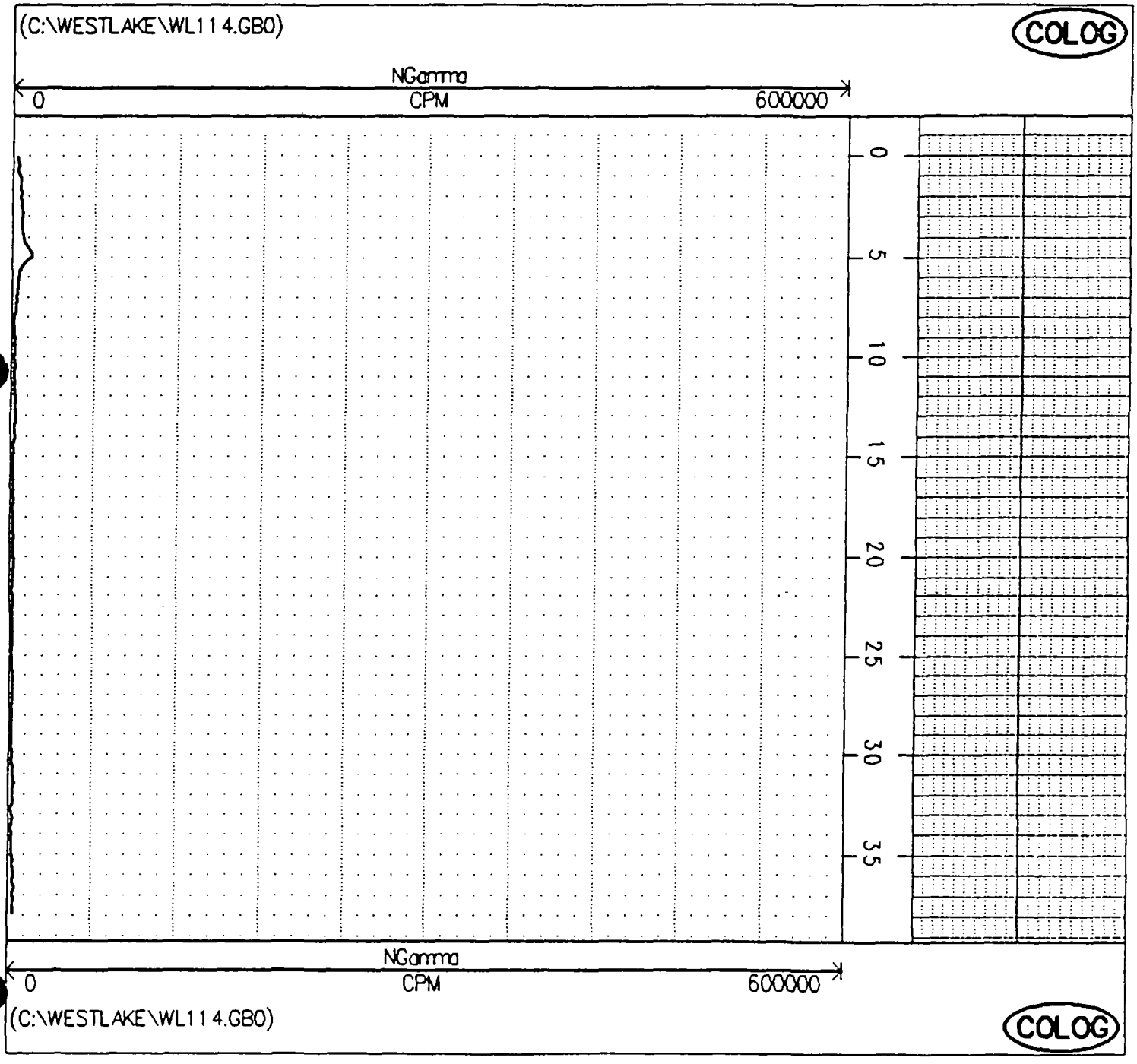
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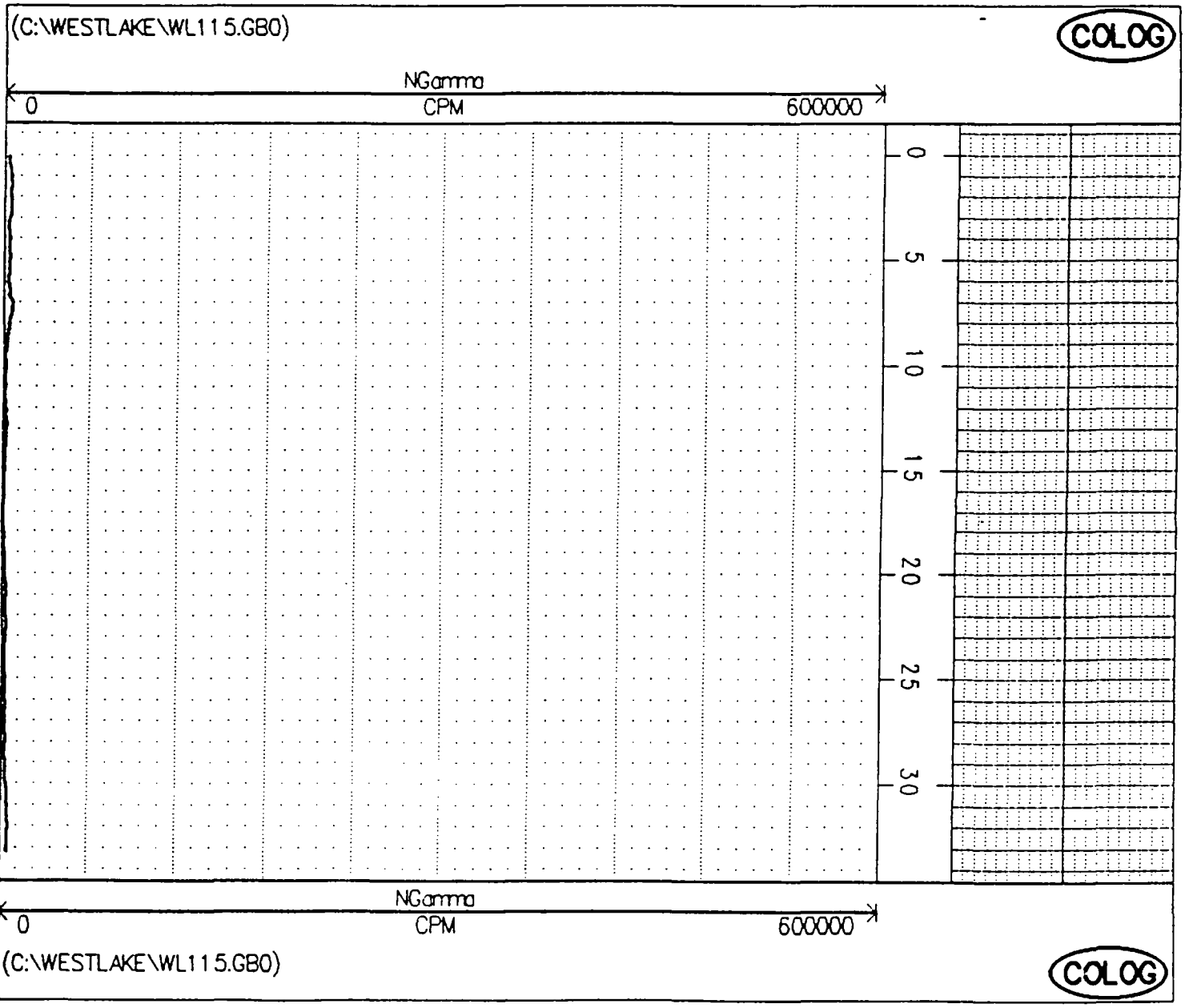
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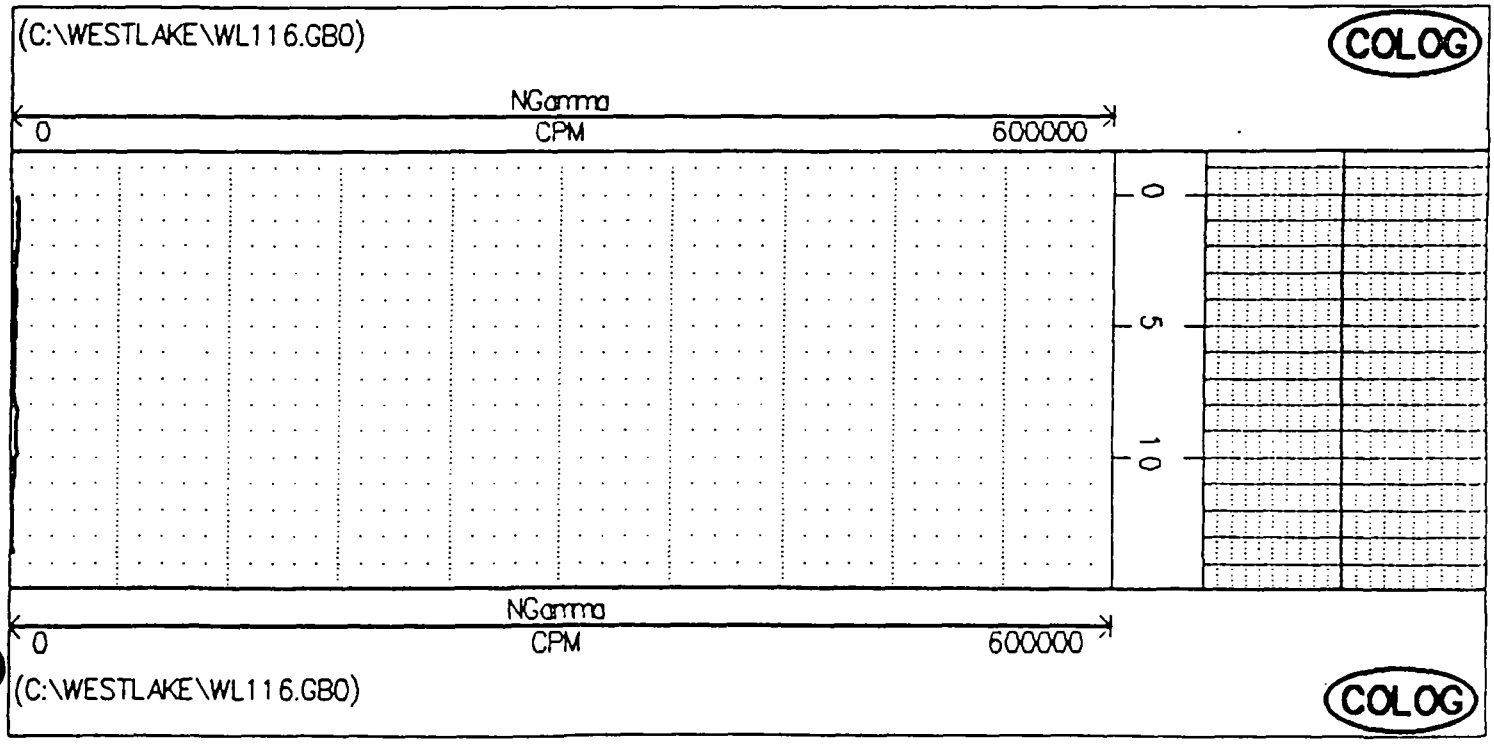
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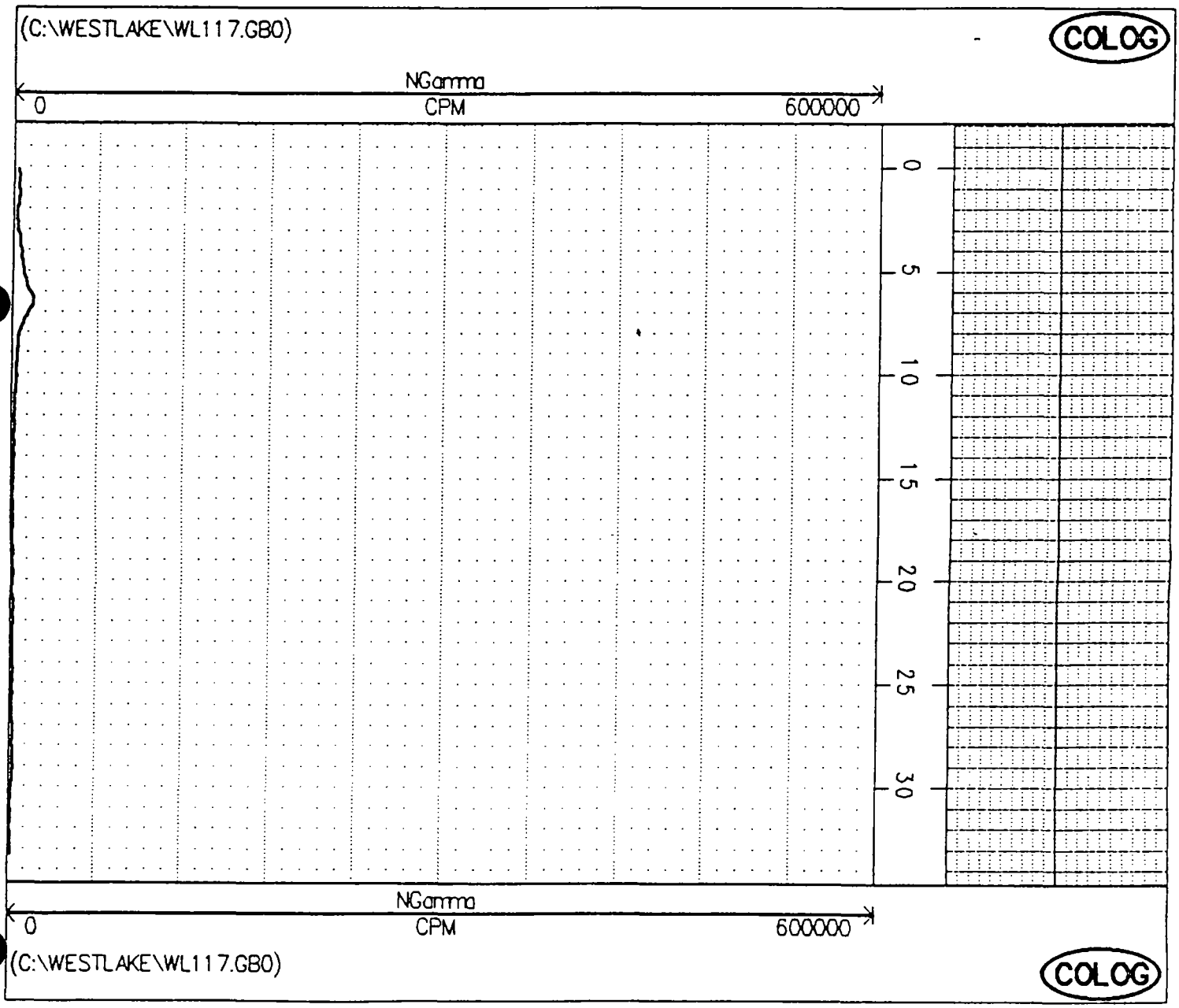
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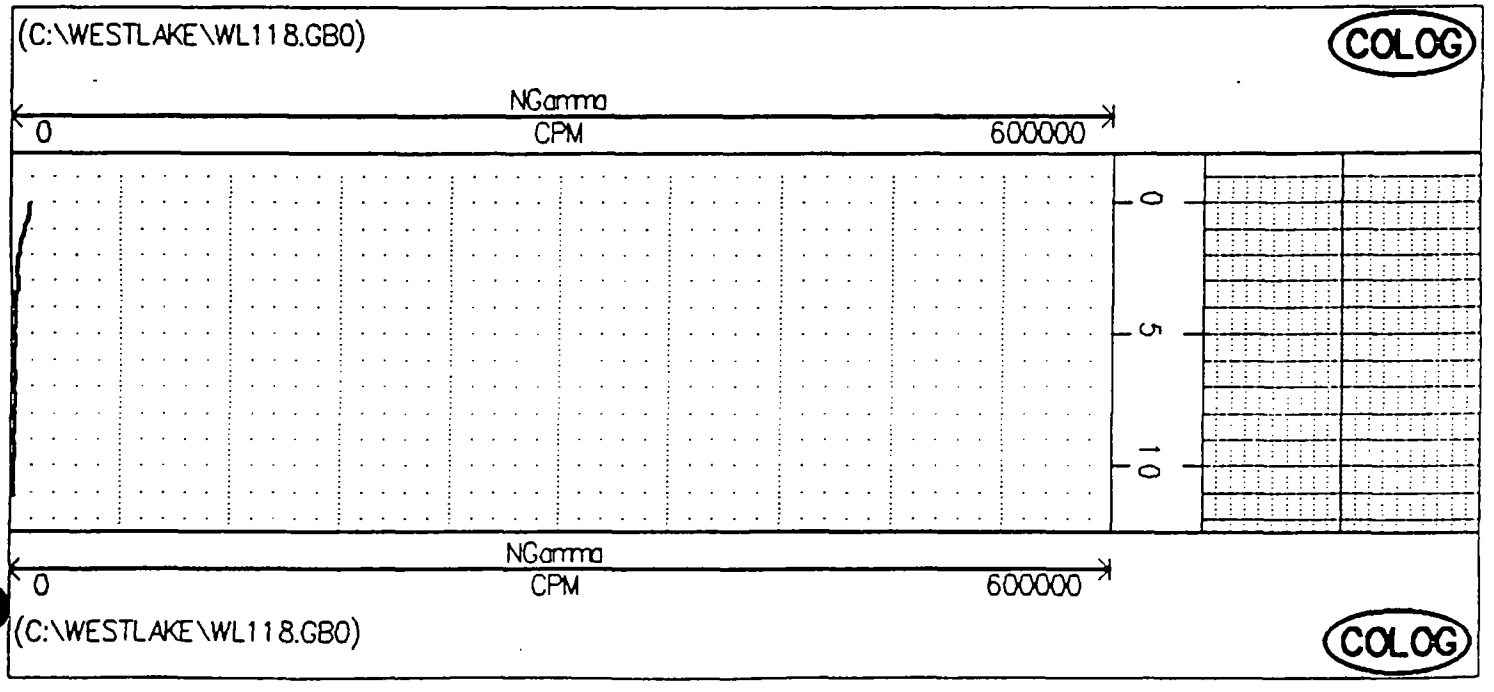
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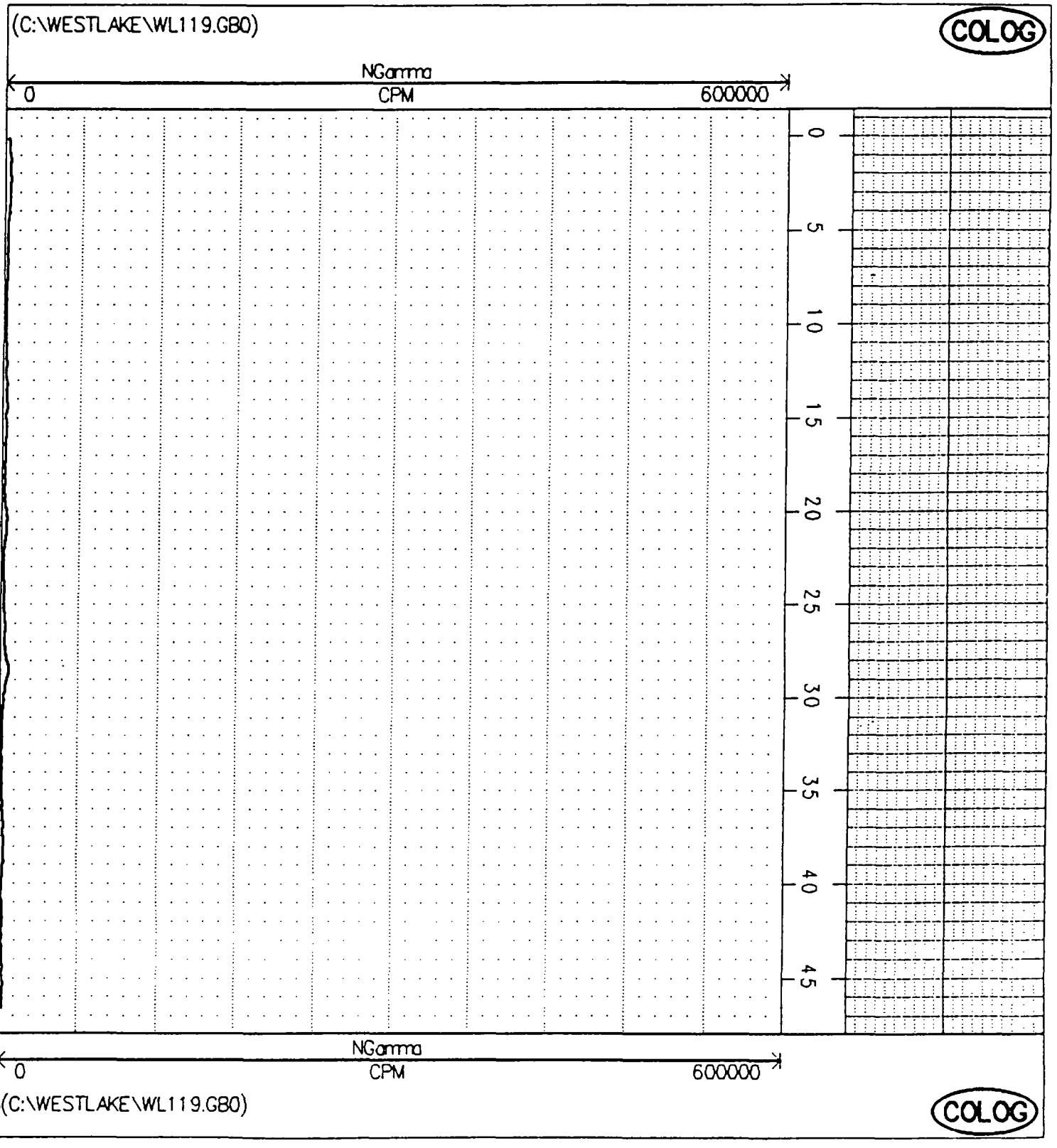
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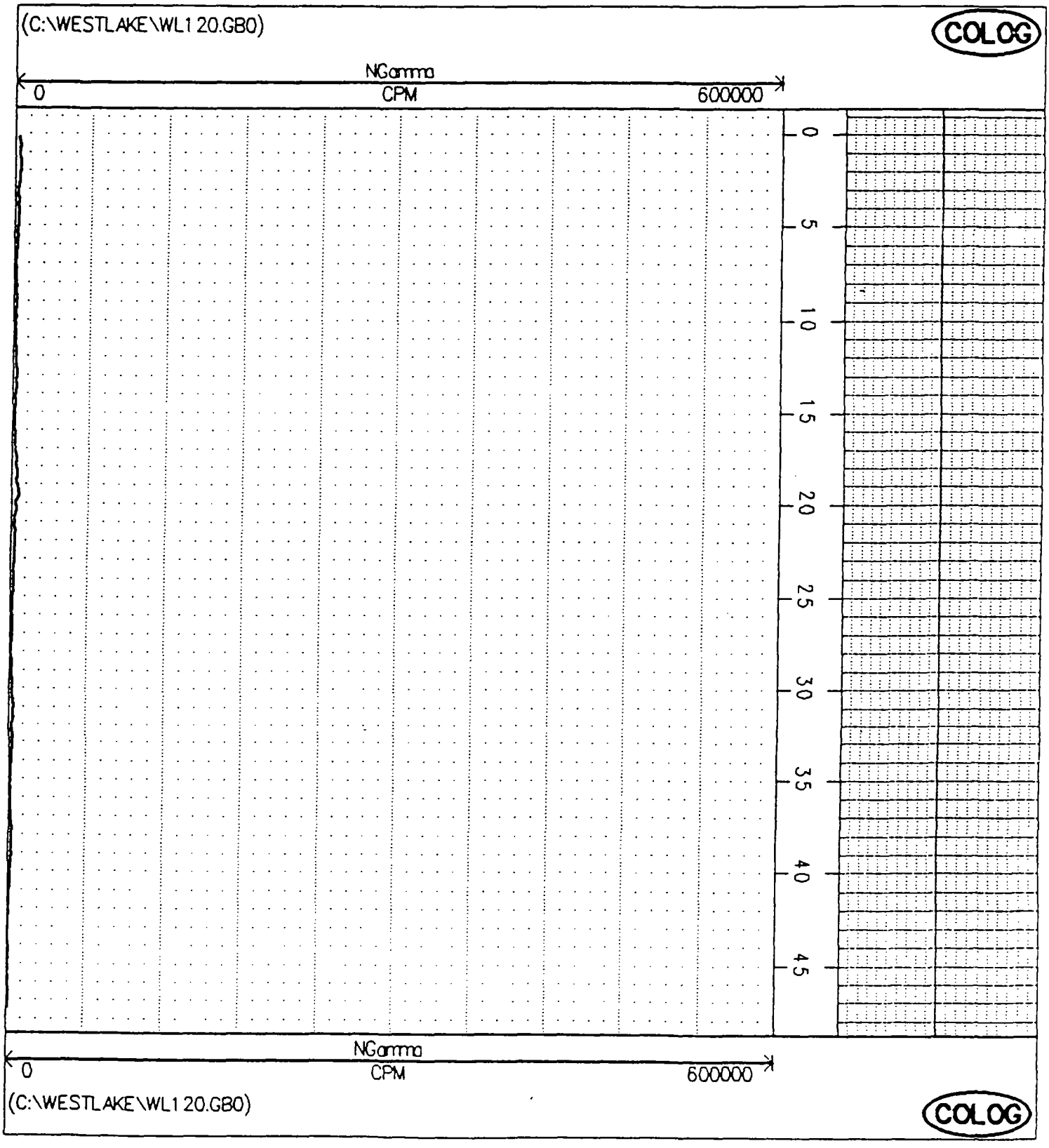
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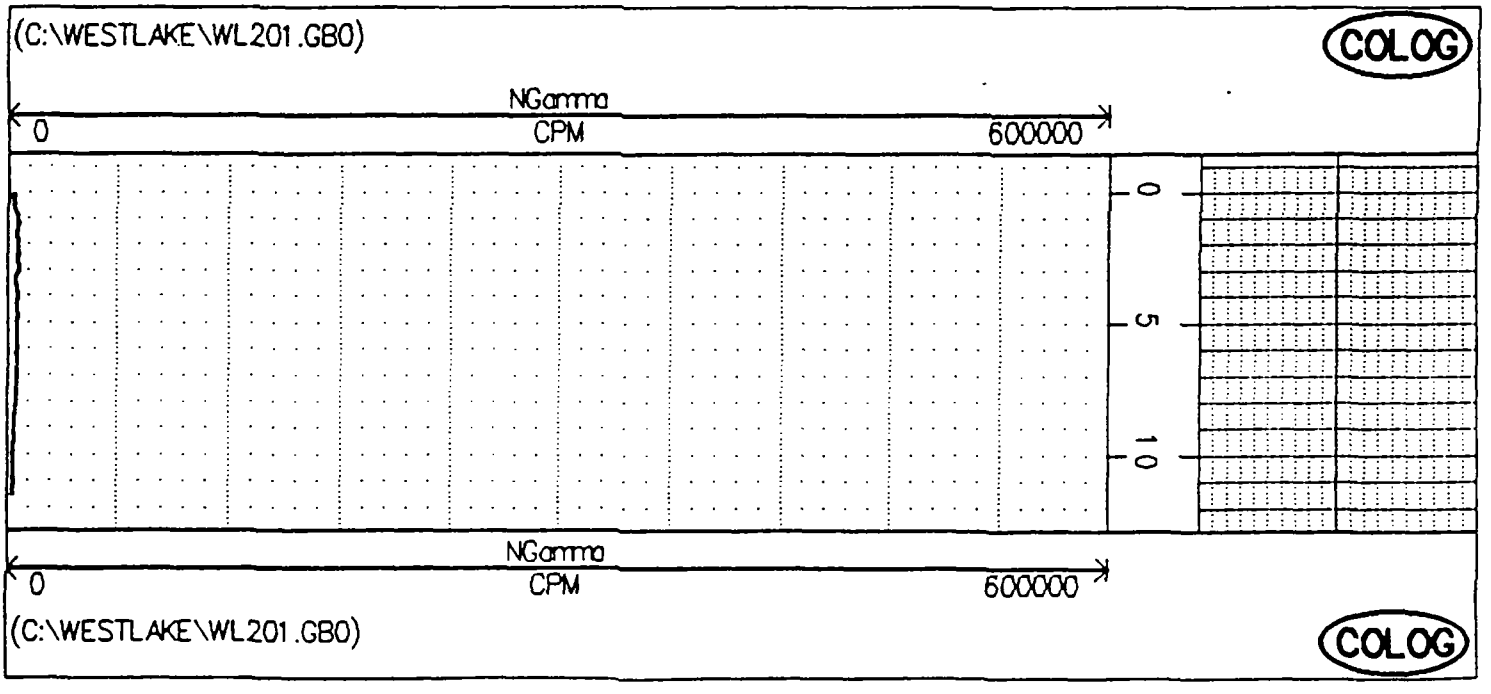
Area 2 Soil Boring
Downhole Gamma Logs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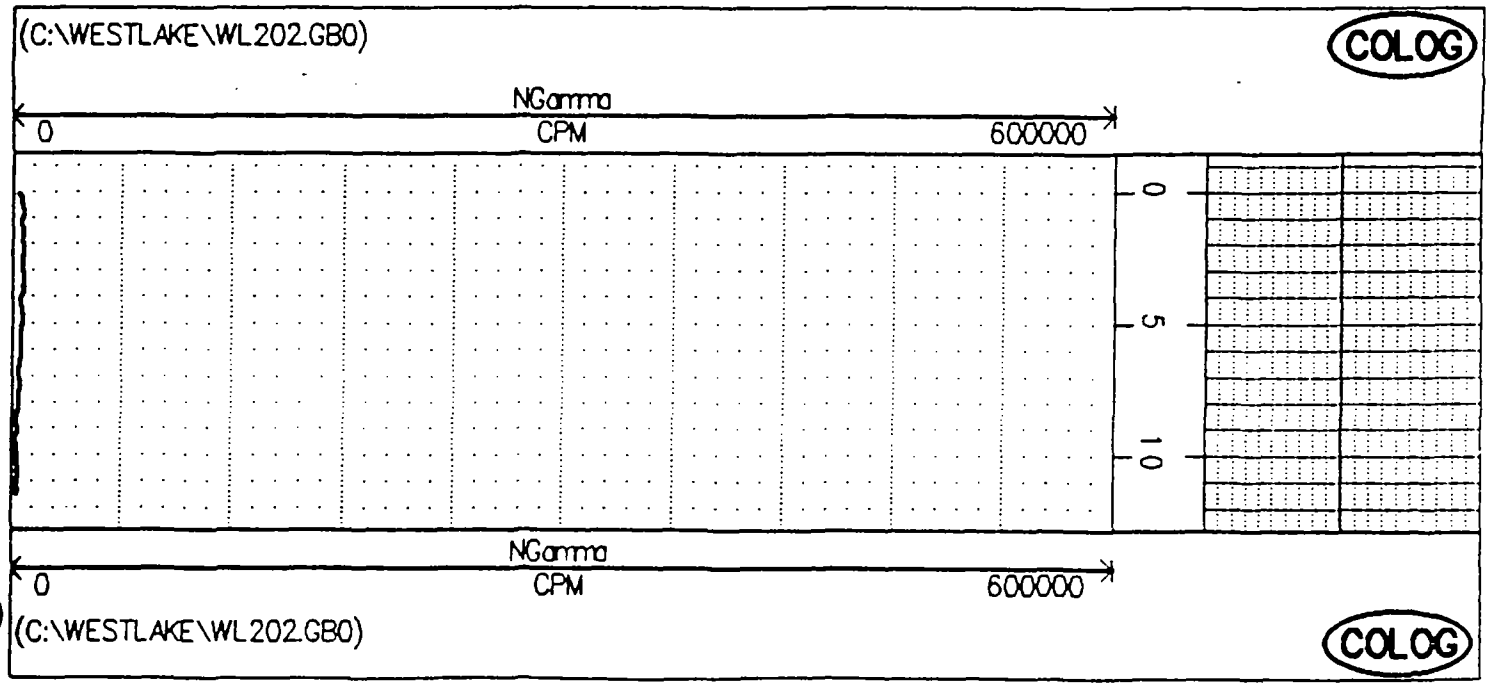
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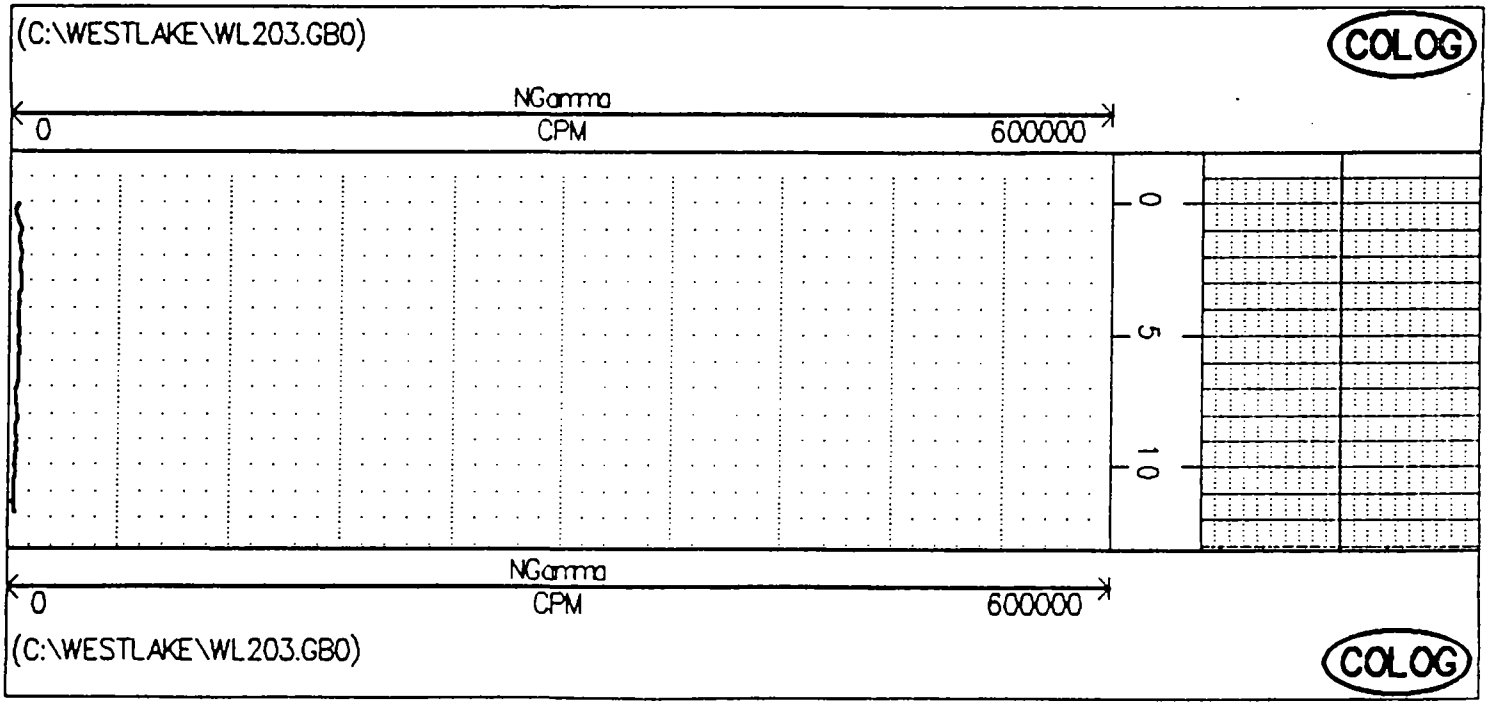
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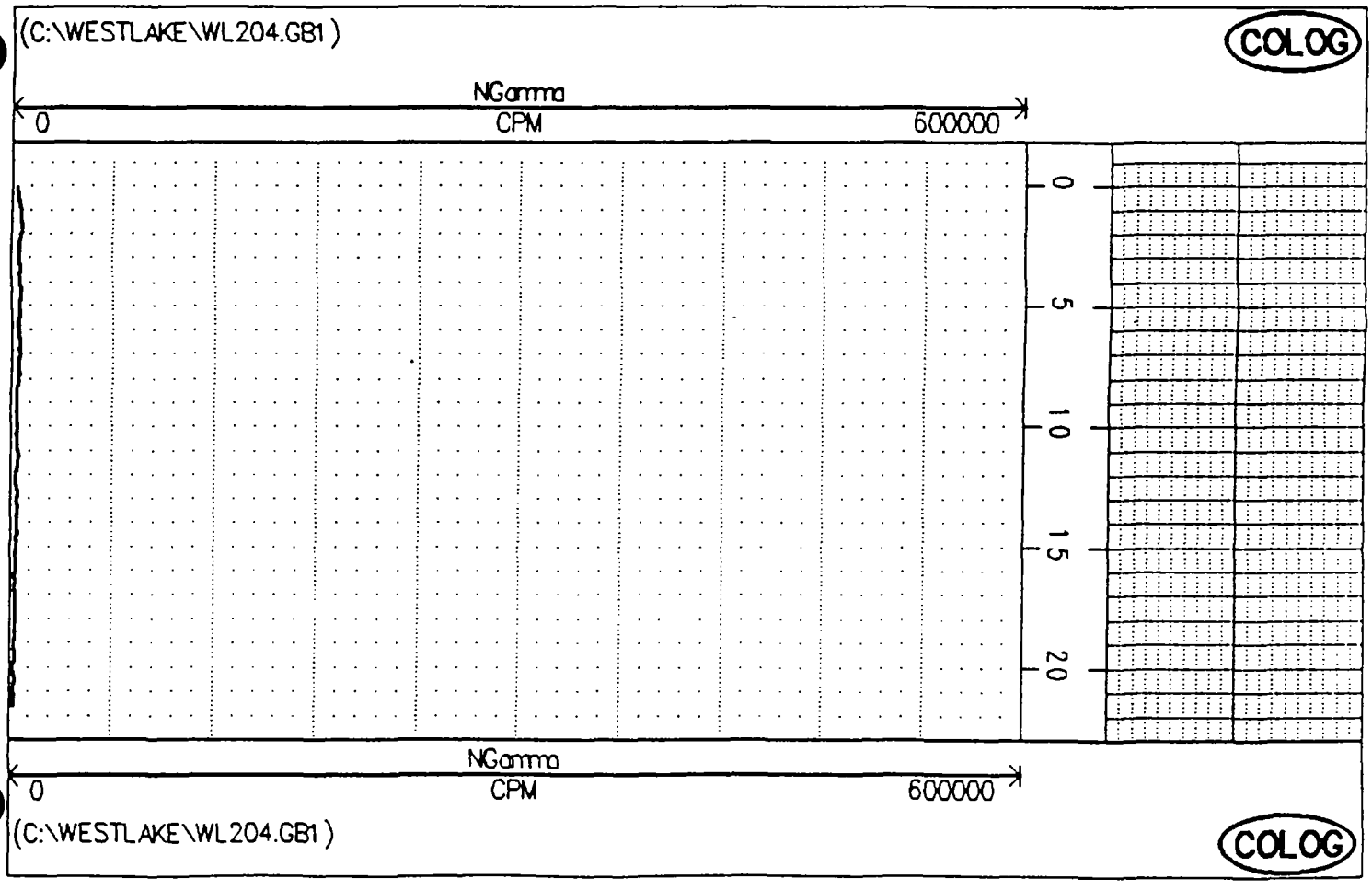
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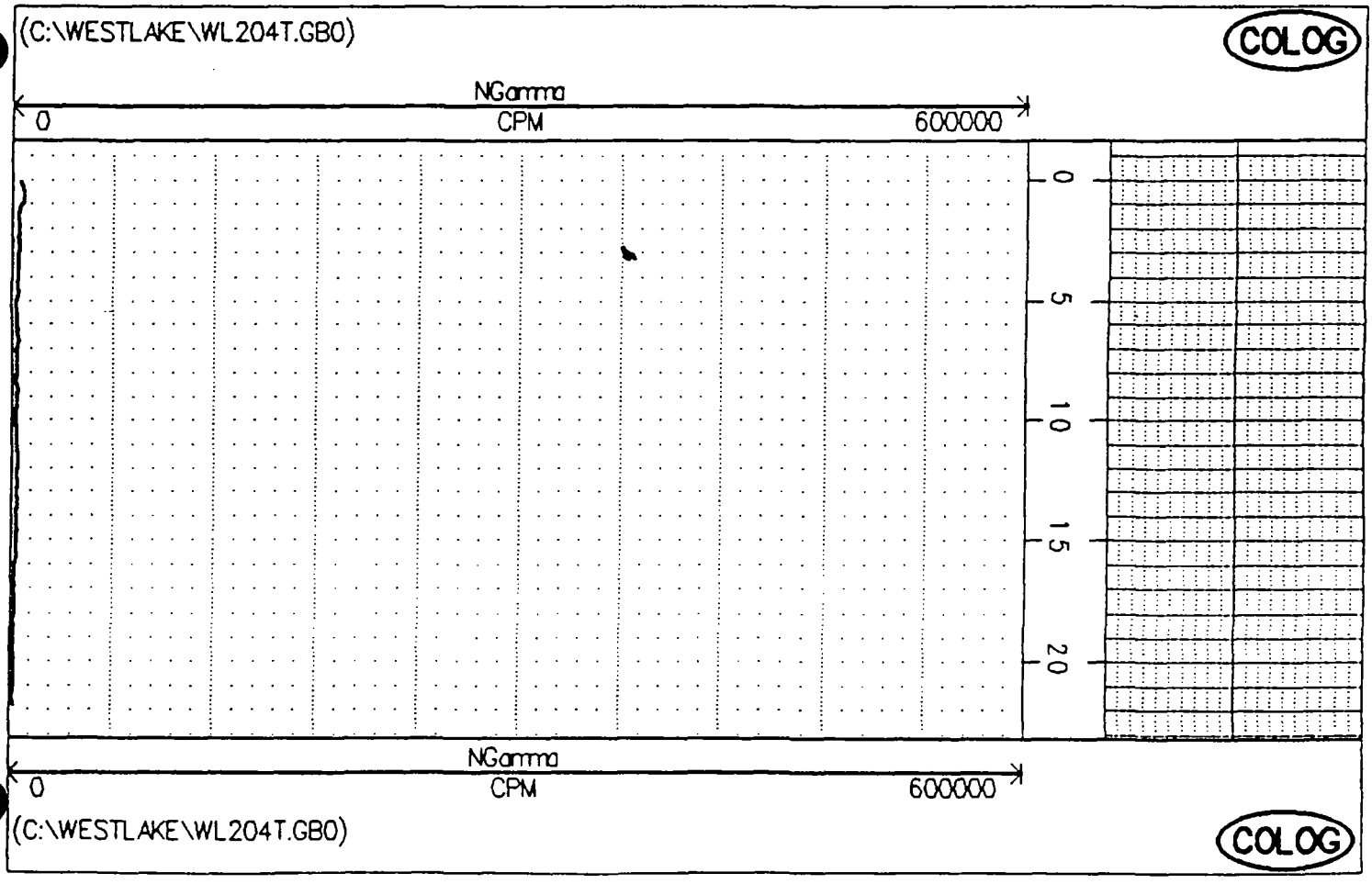
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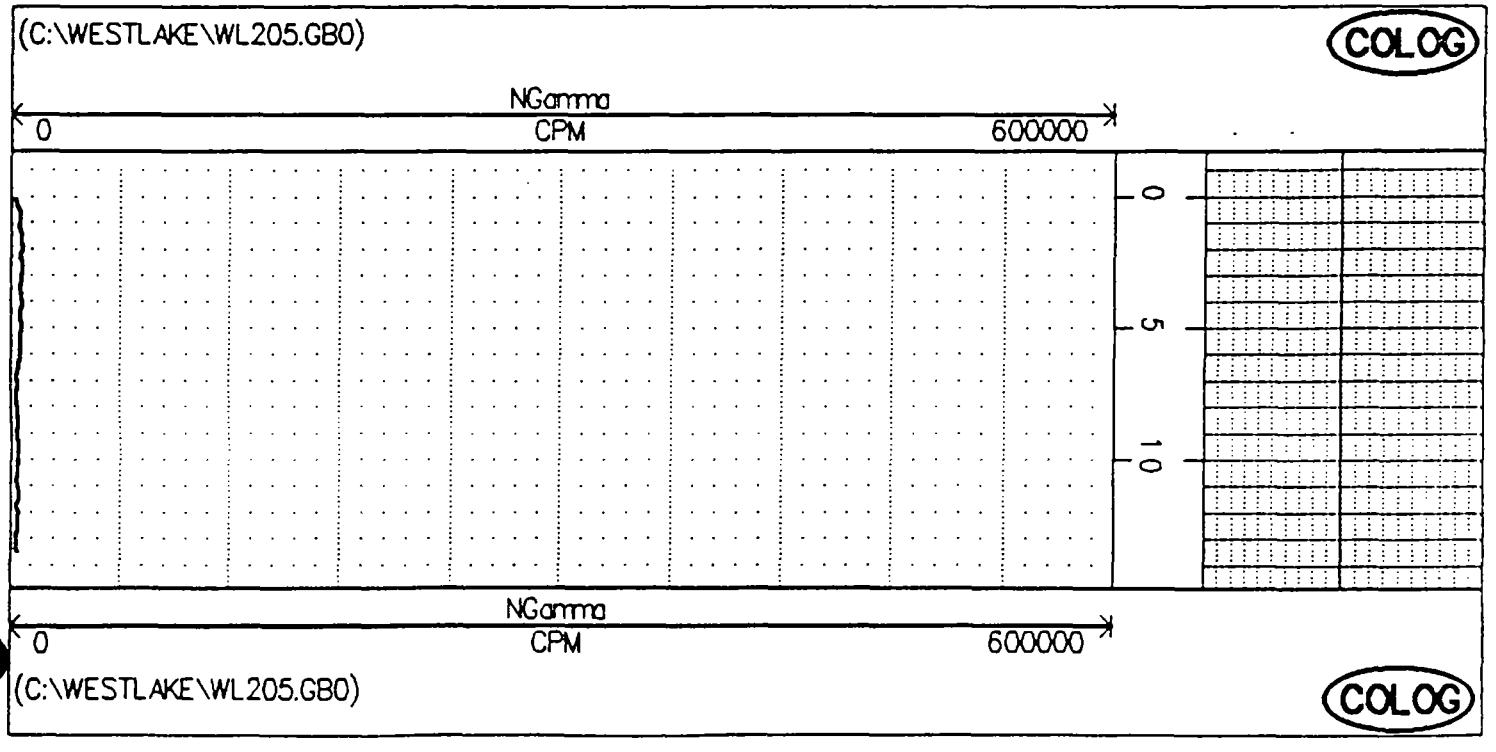
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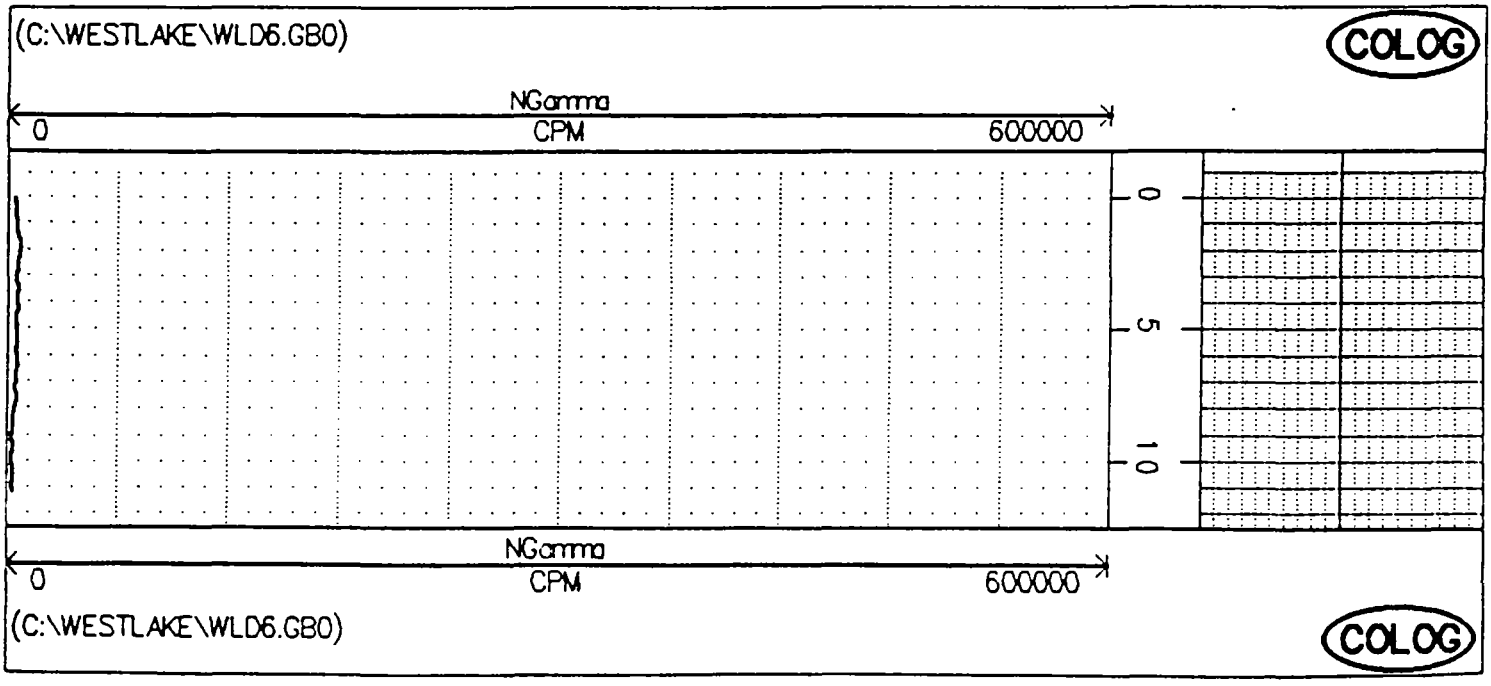
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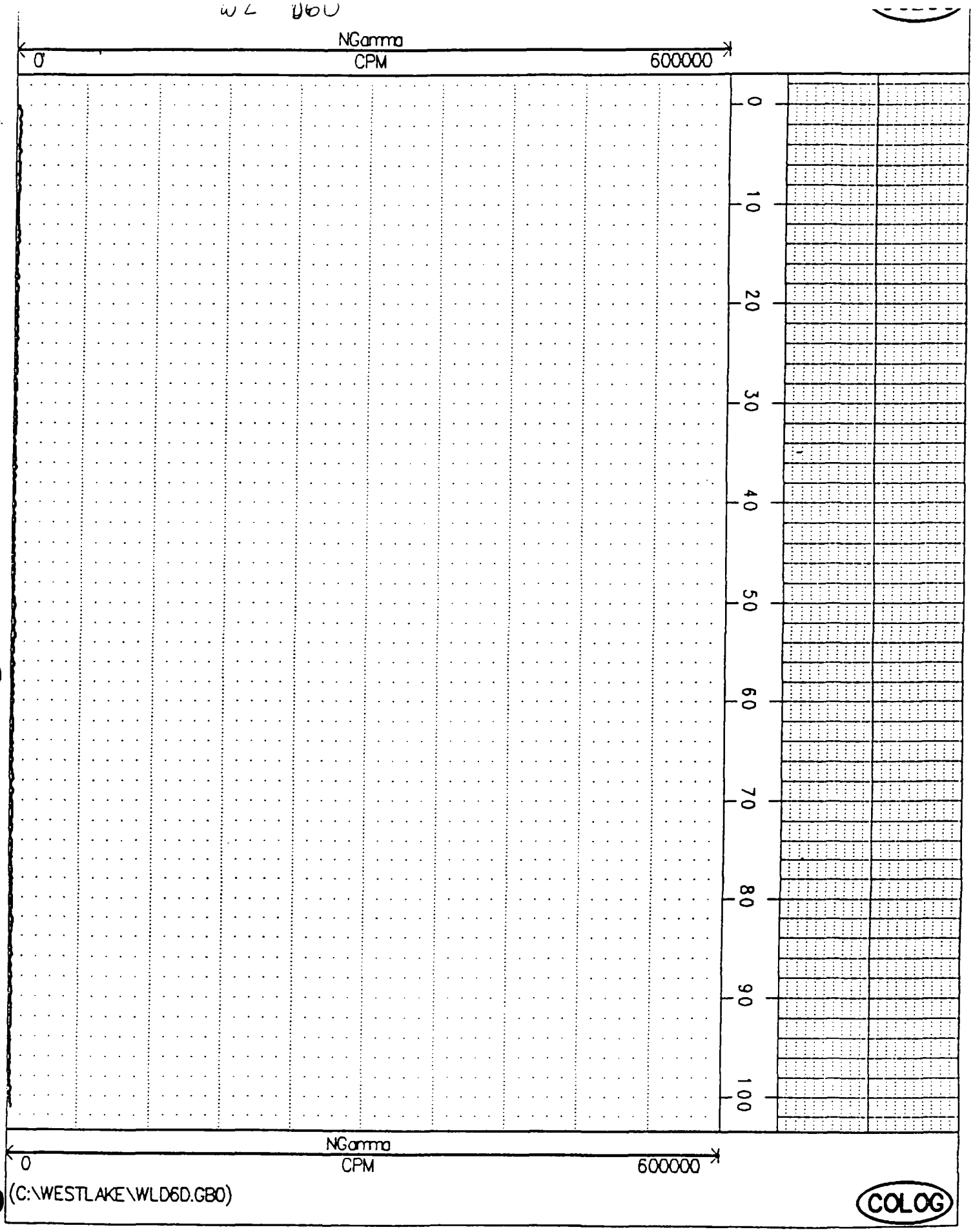
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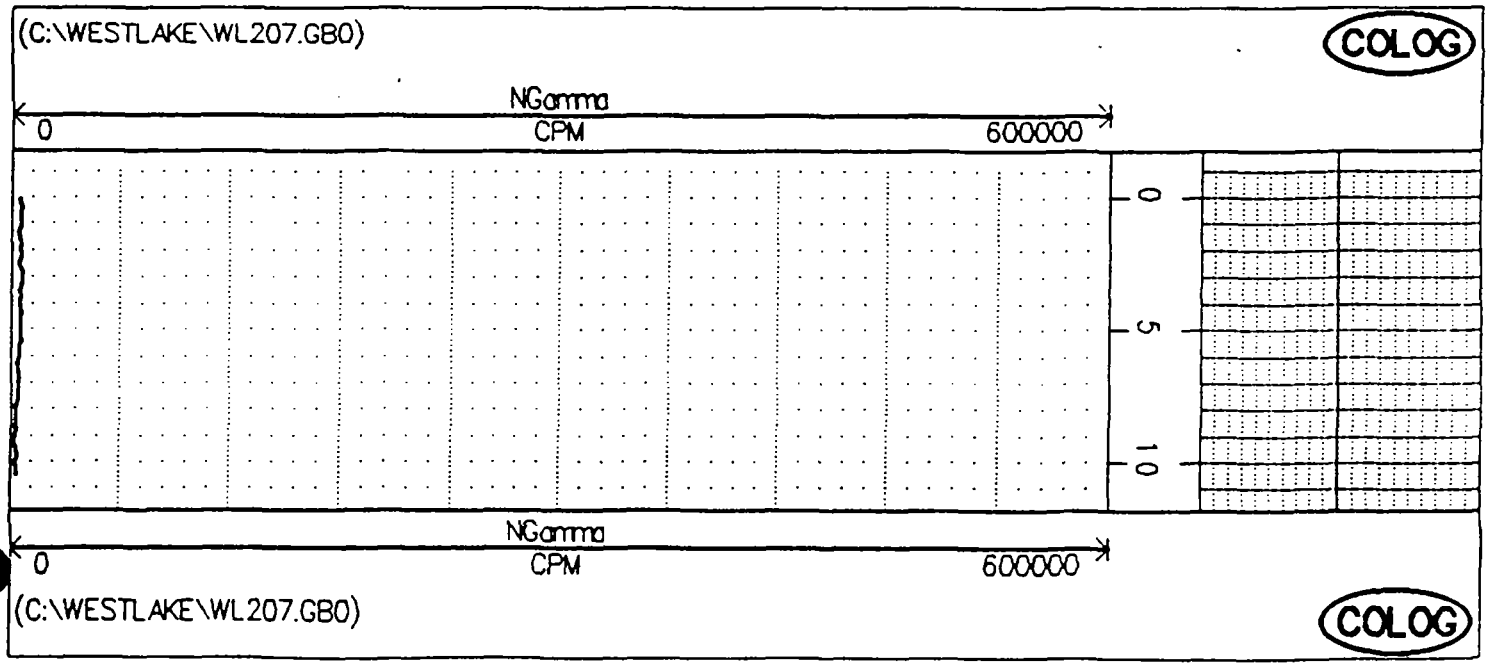
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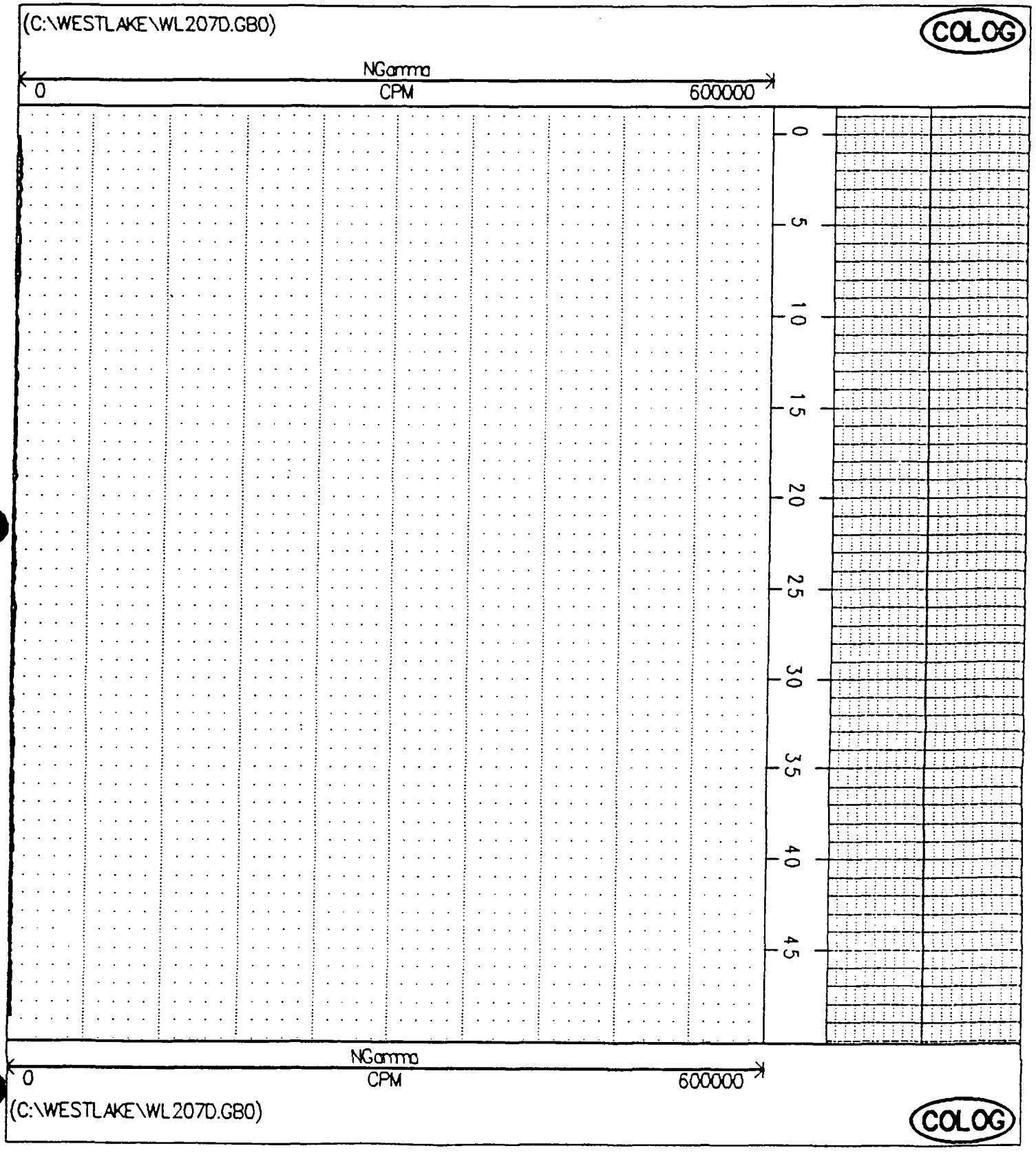
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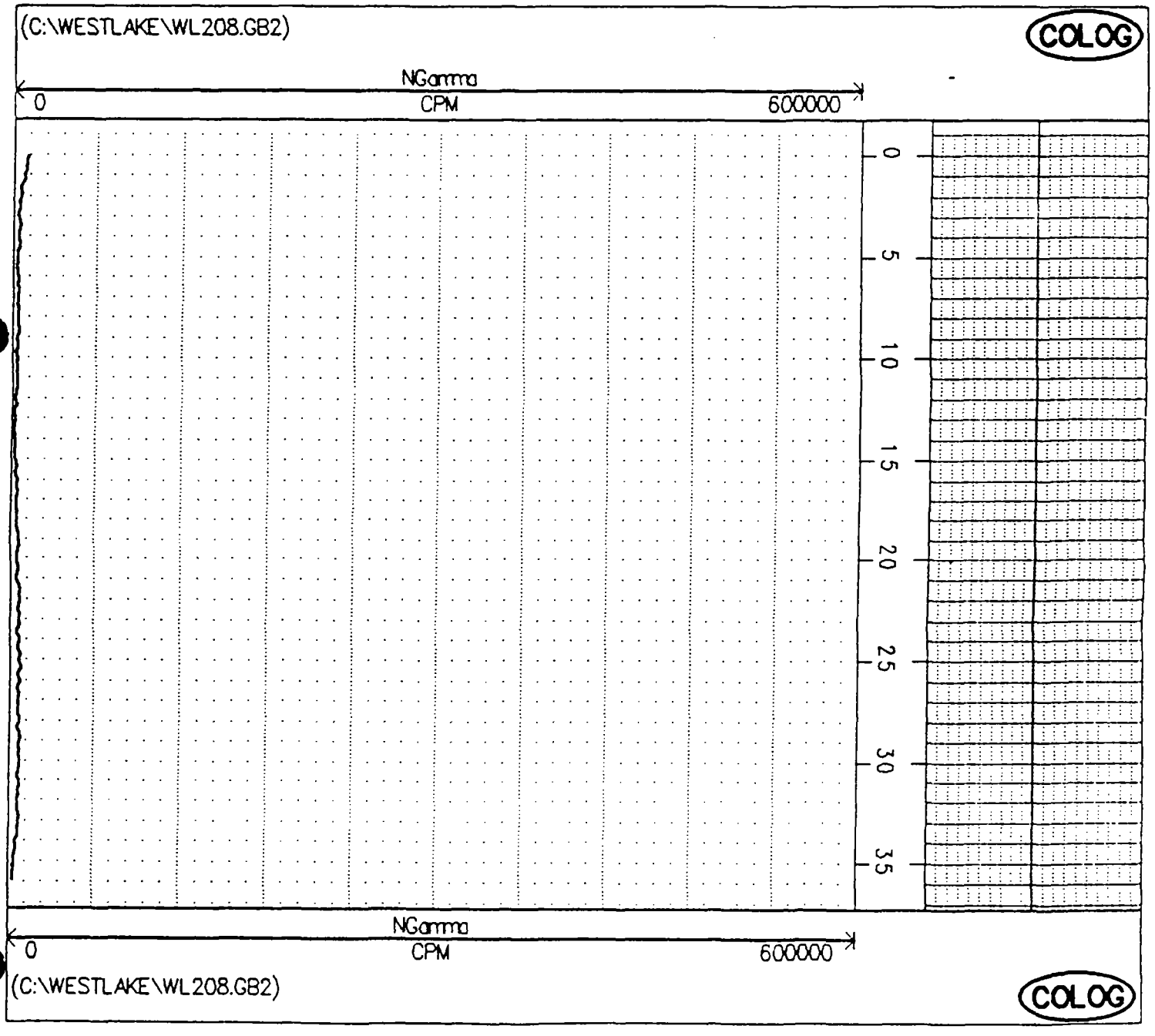
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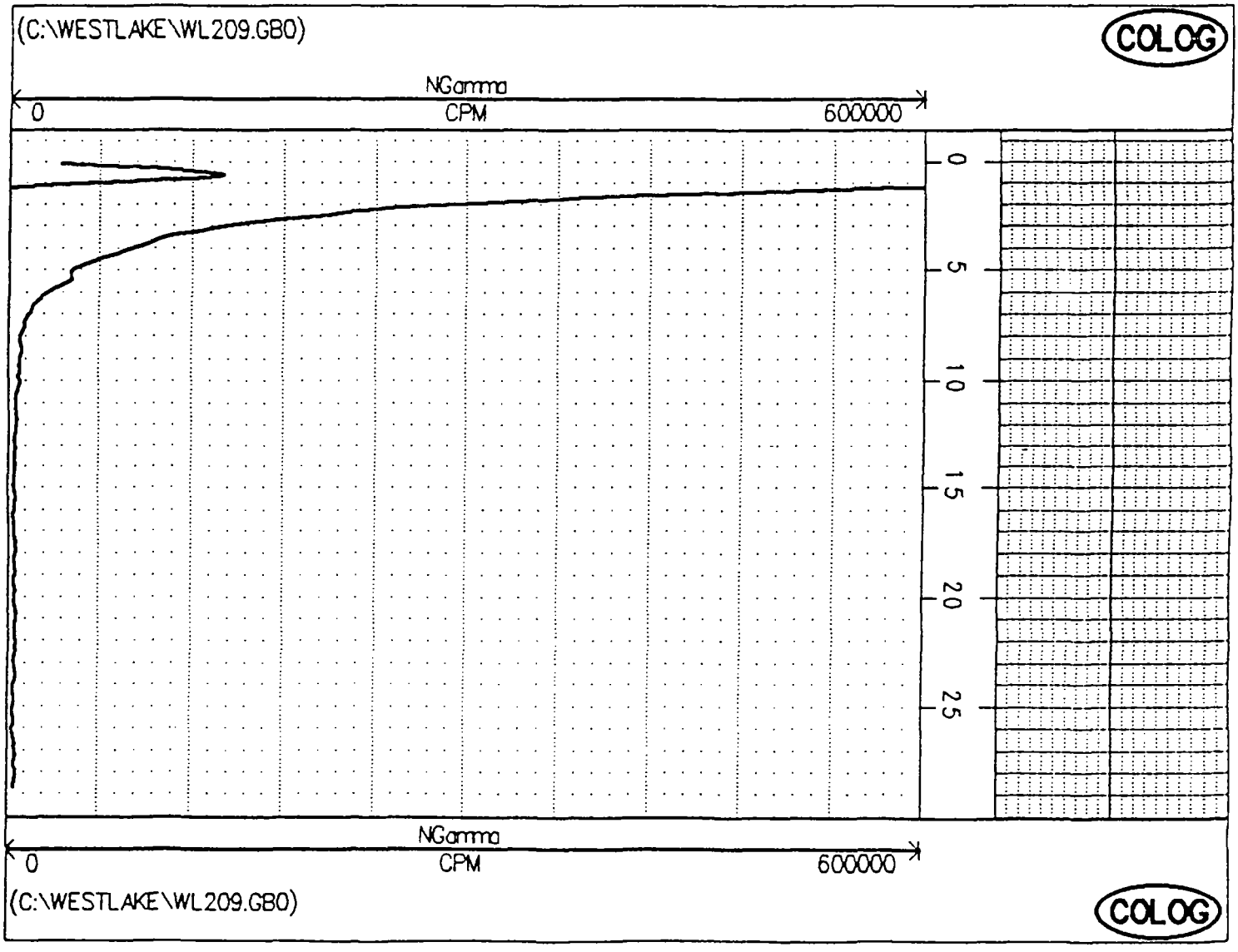
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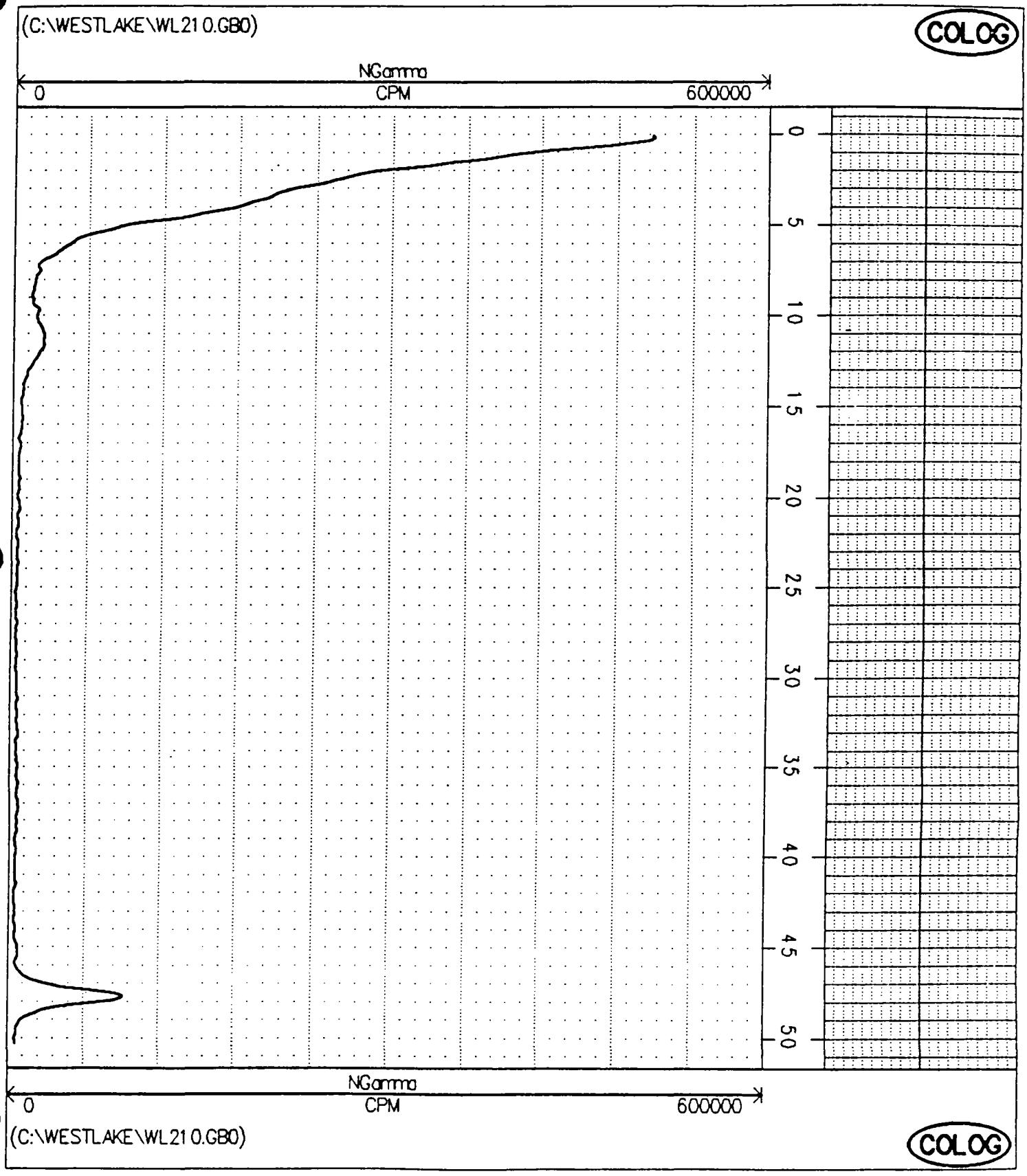
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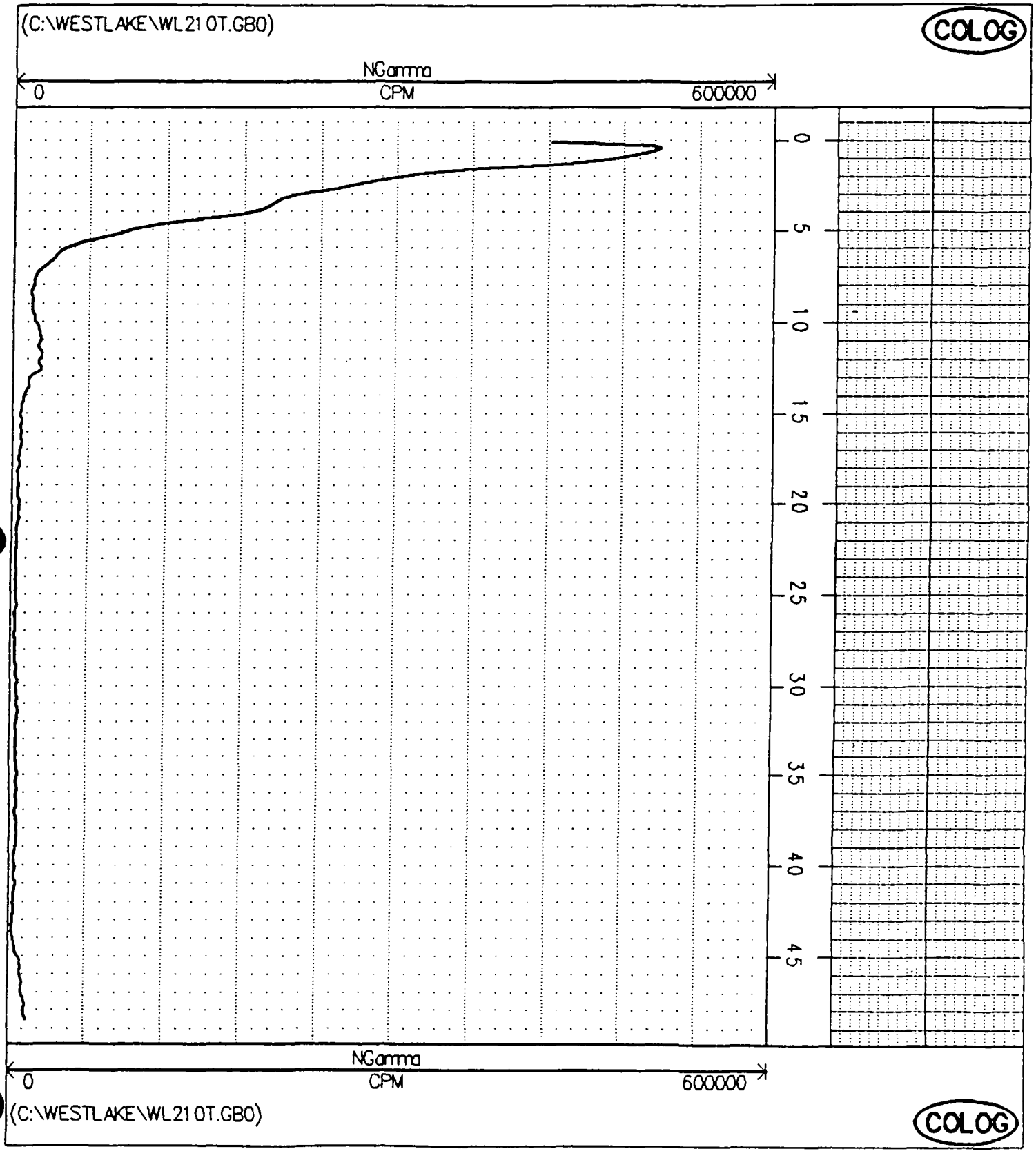
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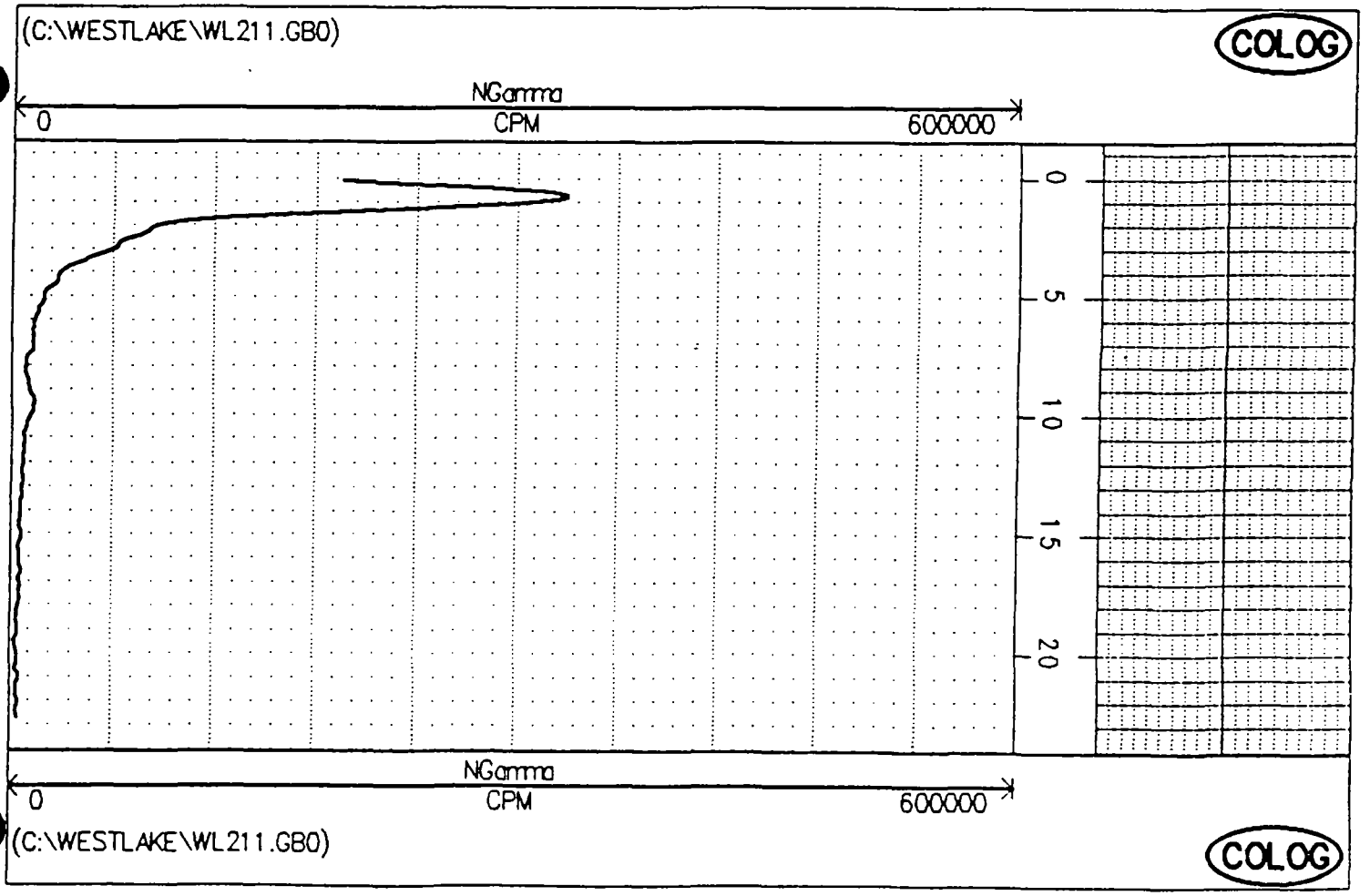
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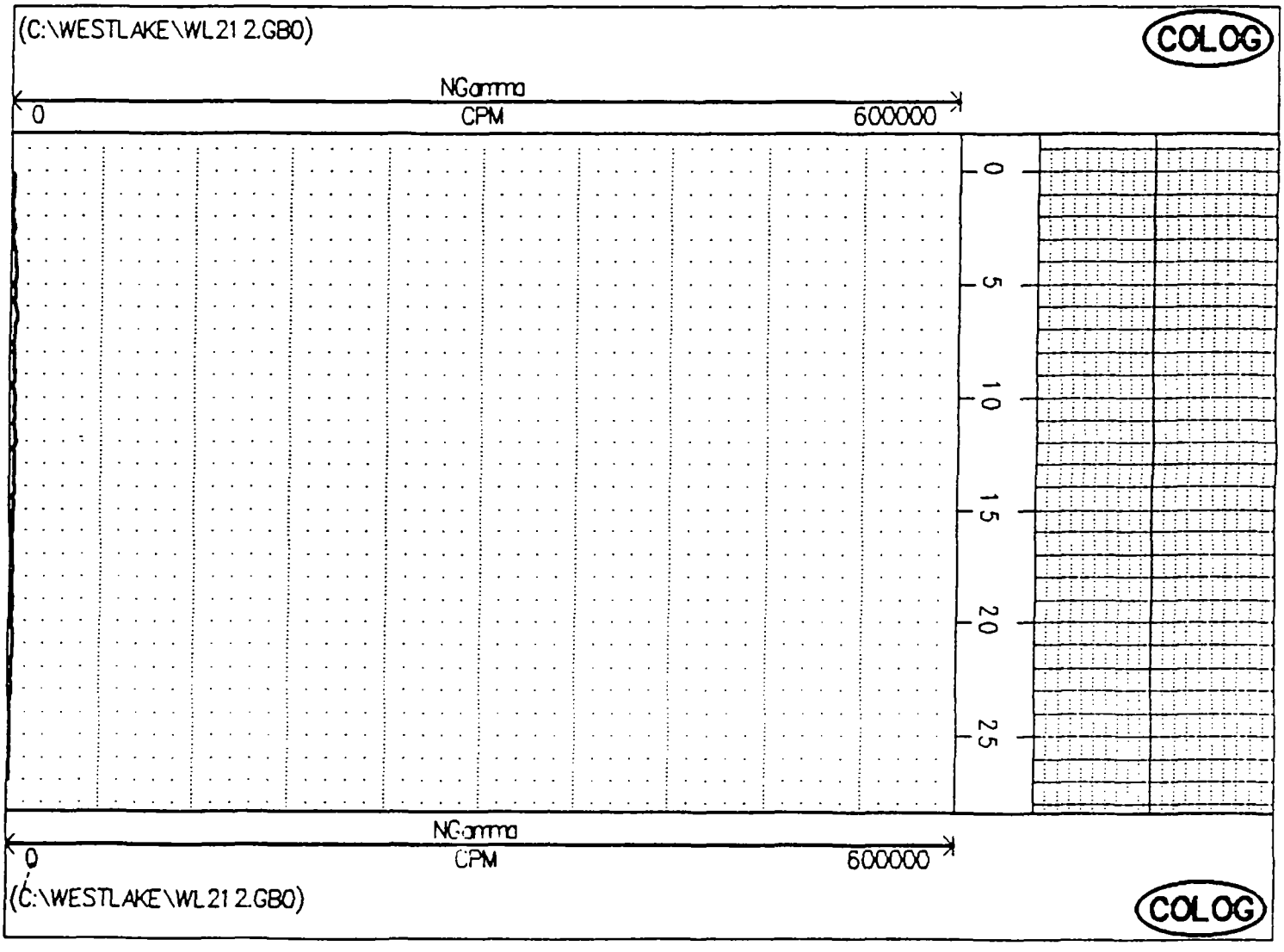
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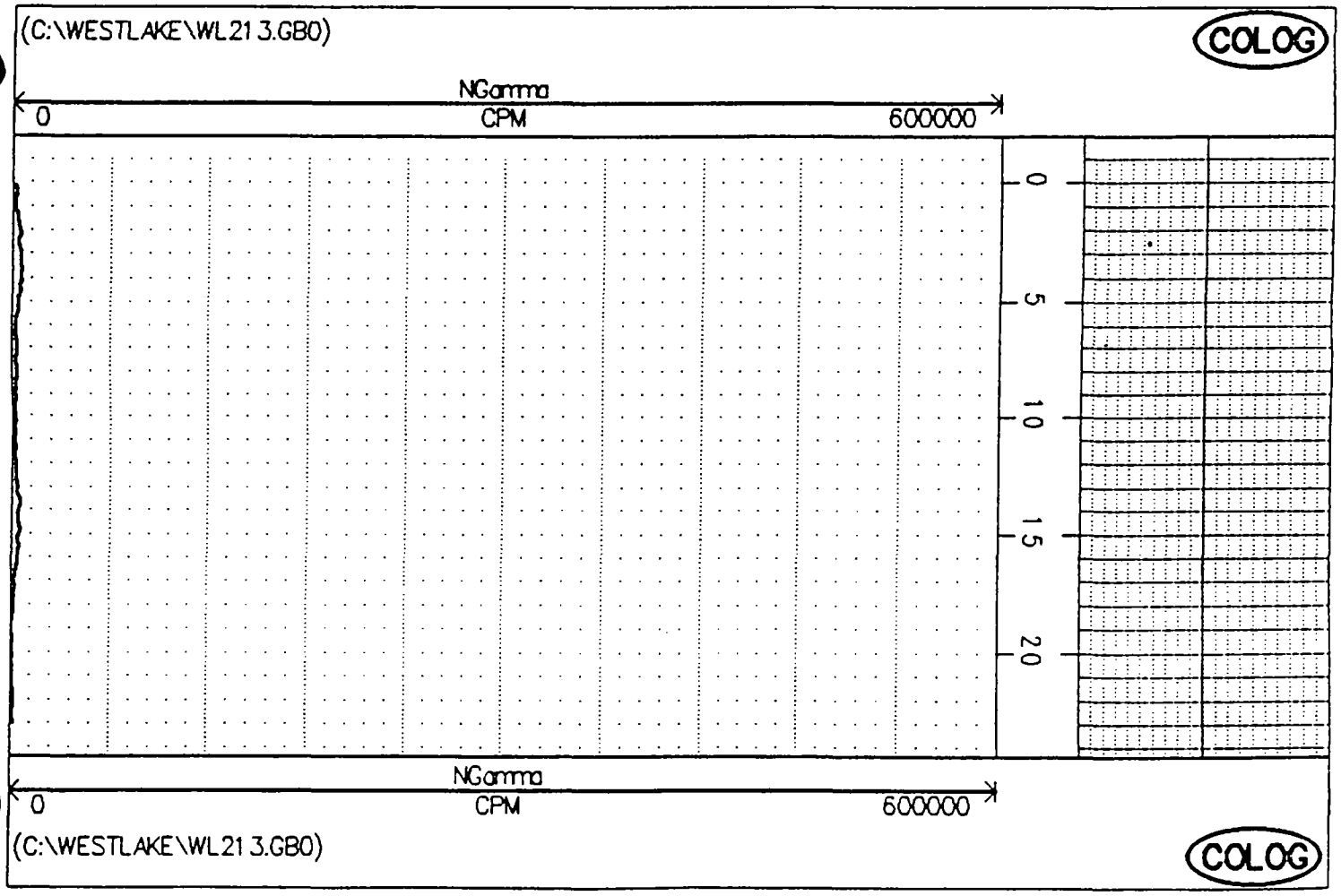
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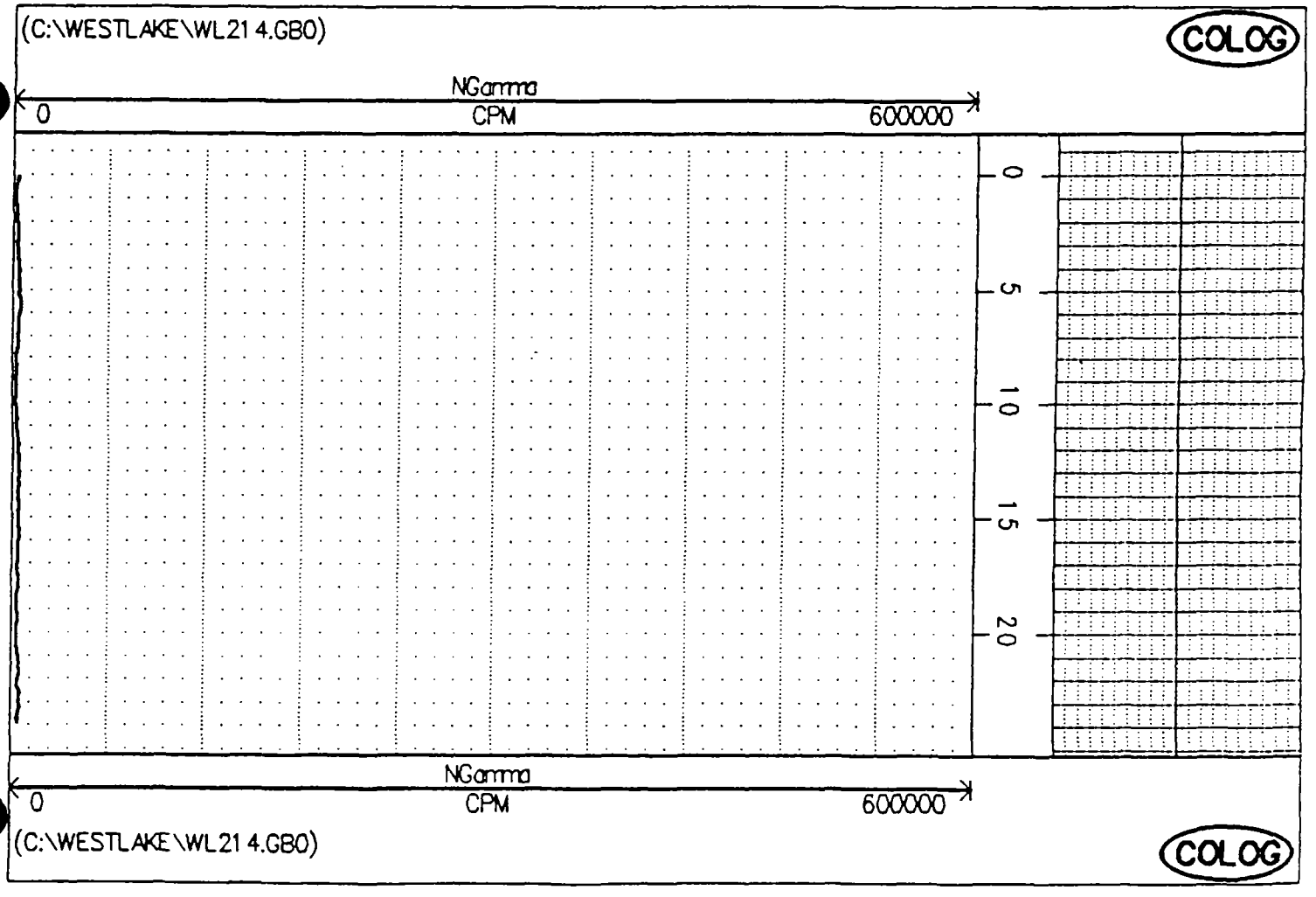
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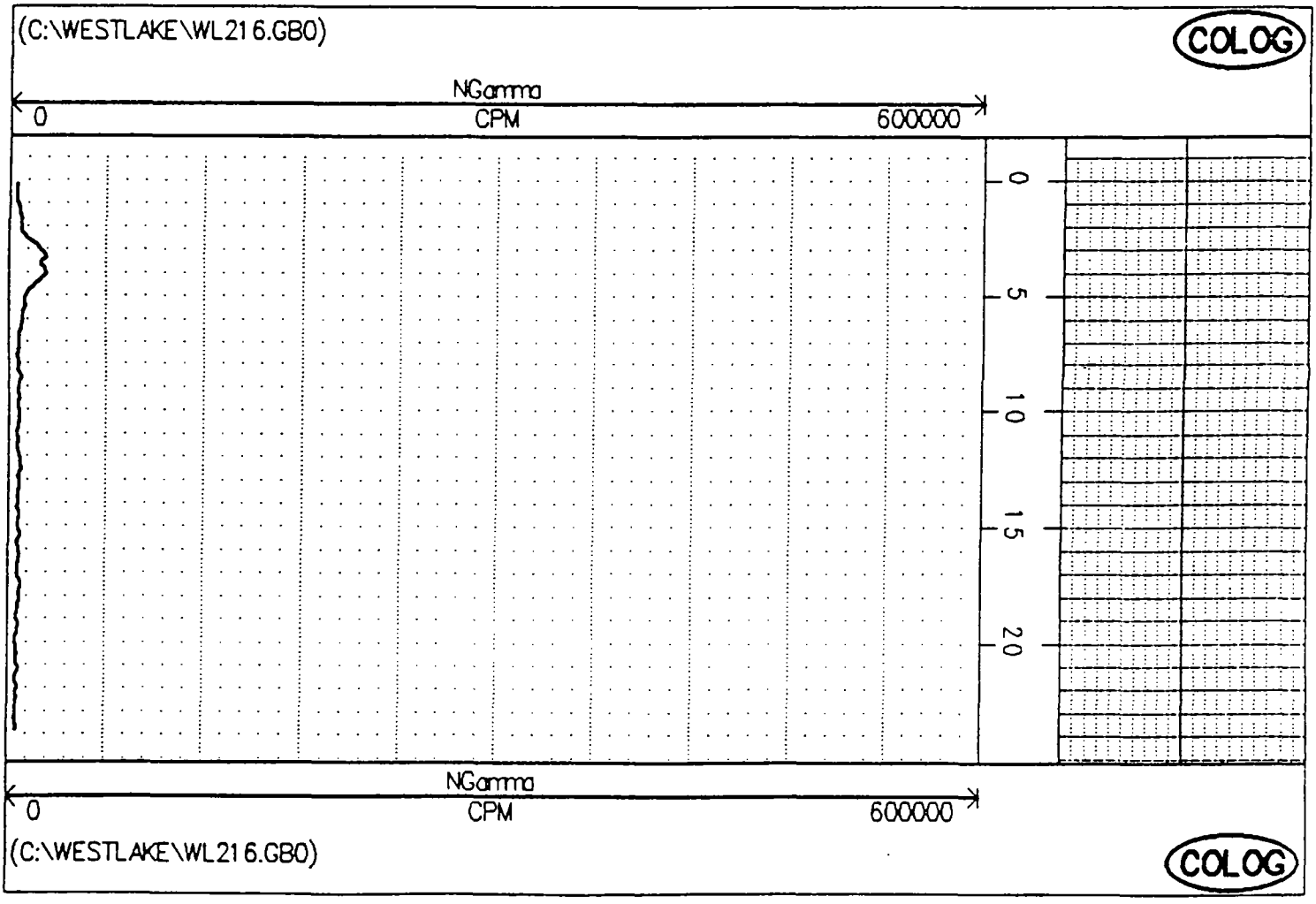
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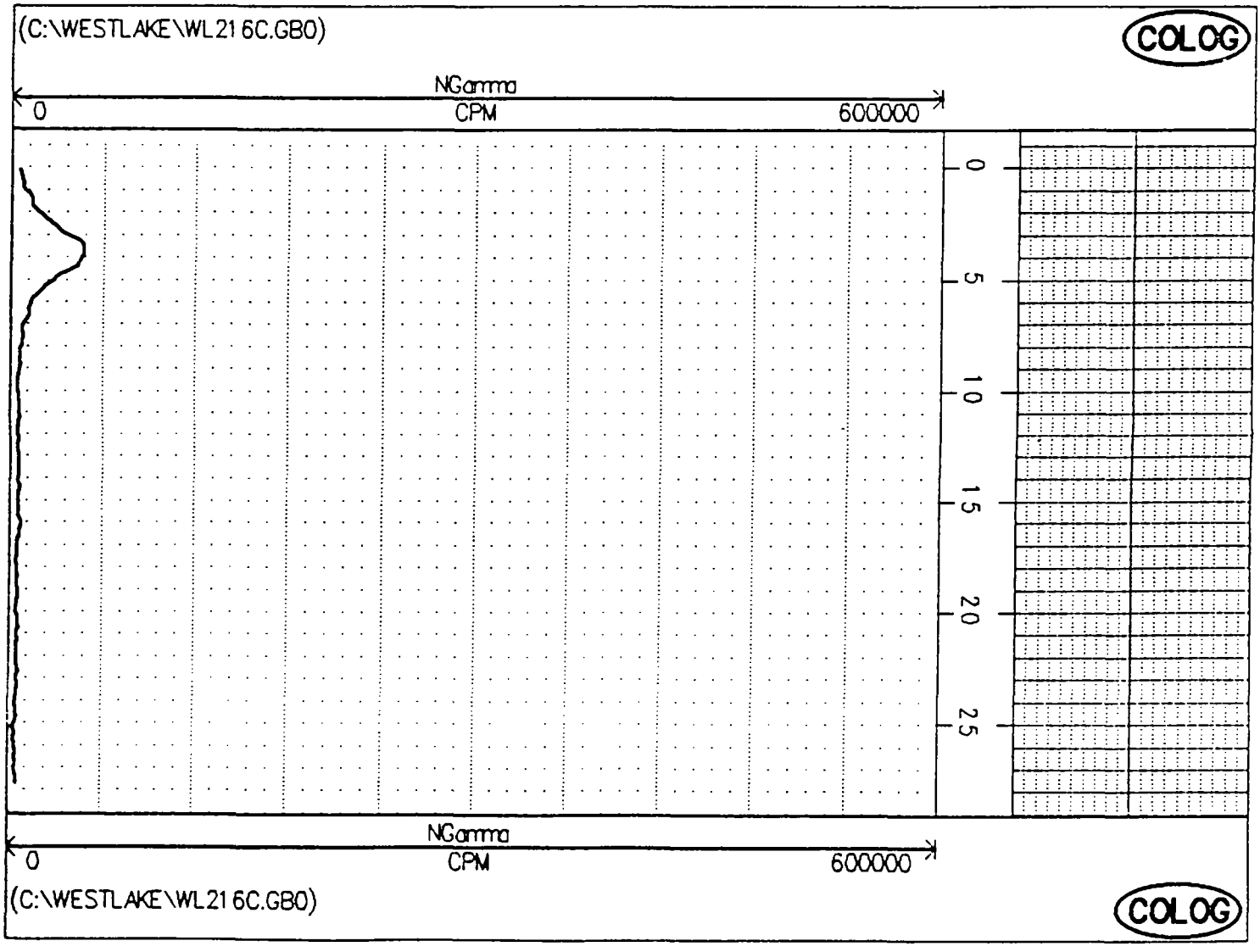
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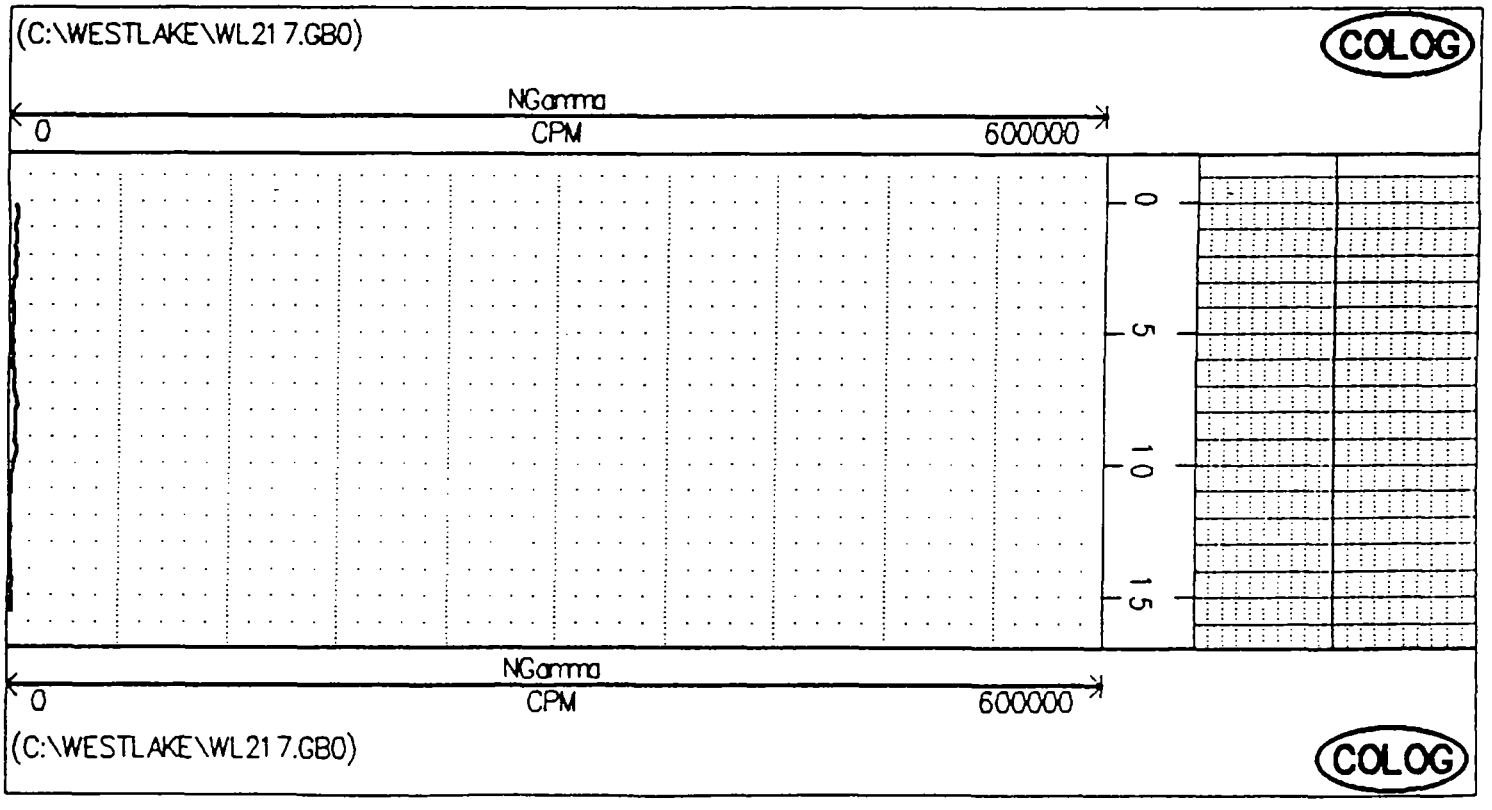
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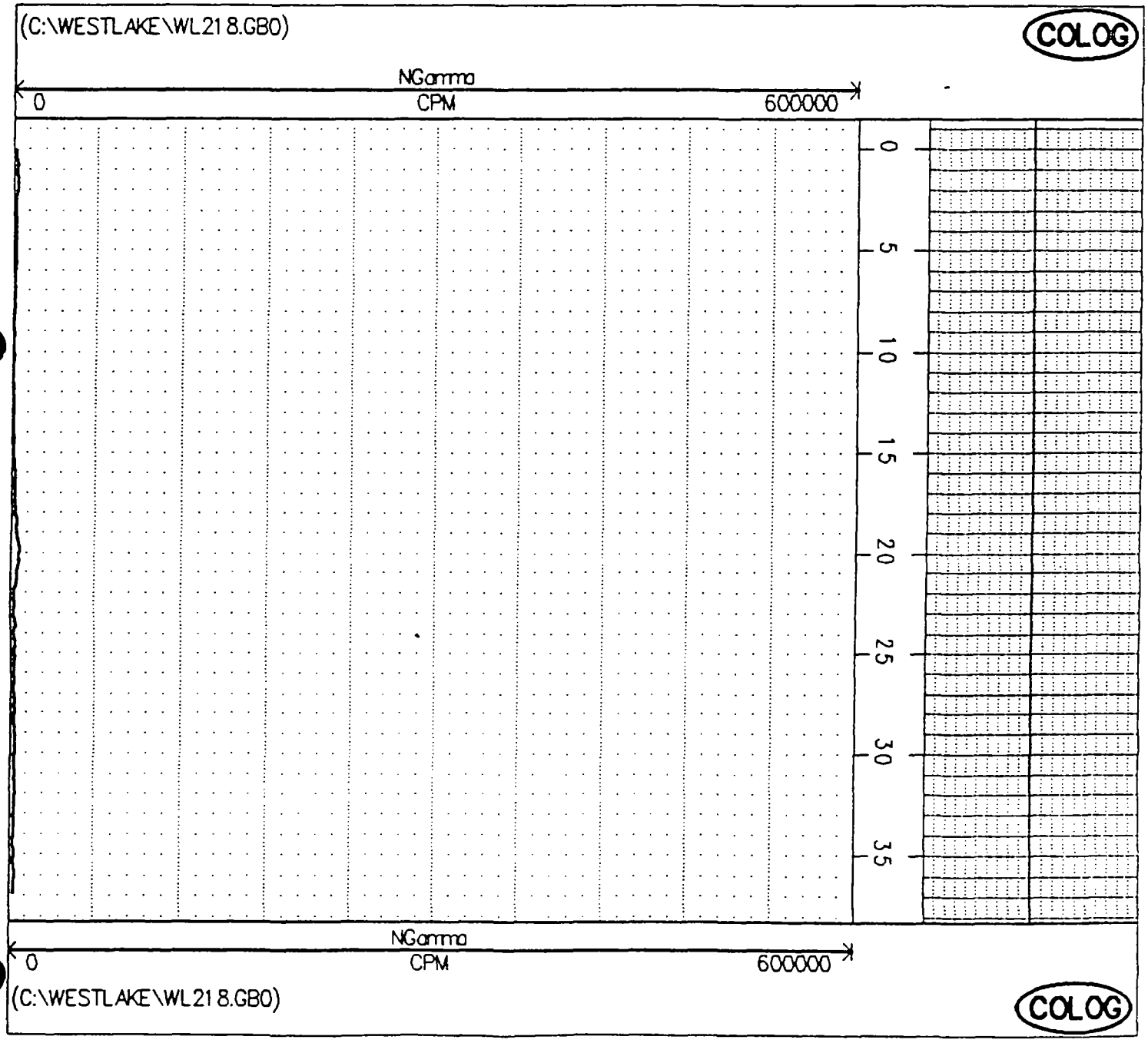
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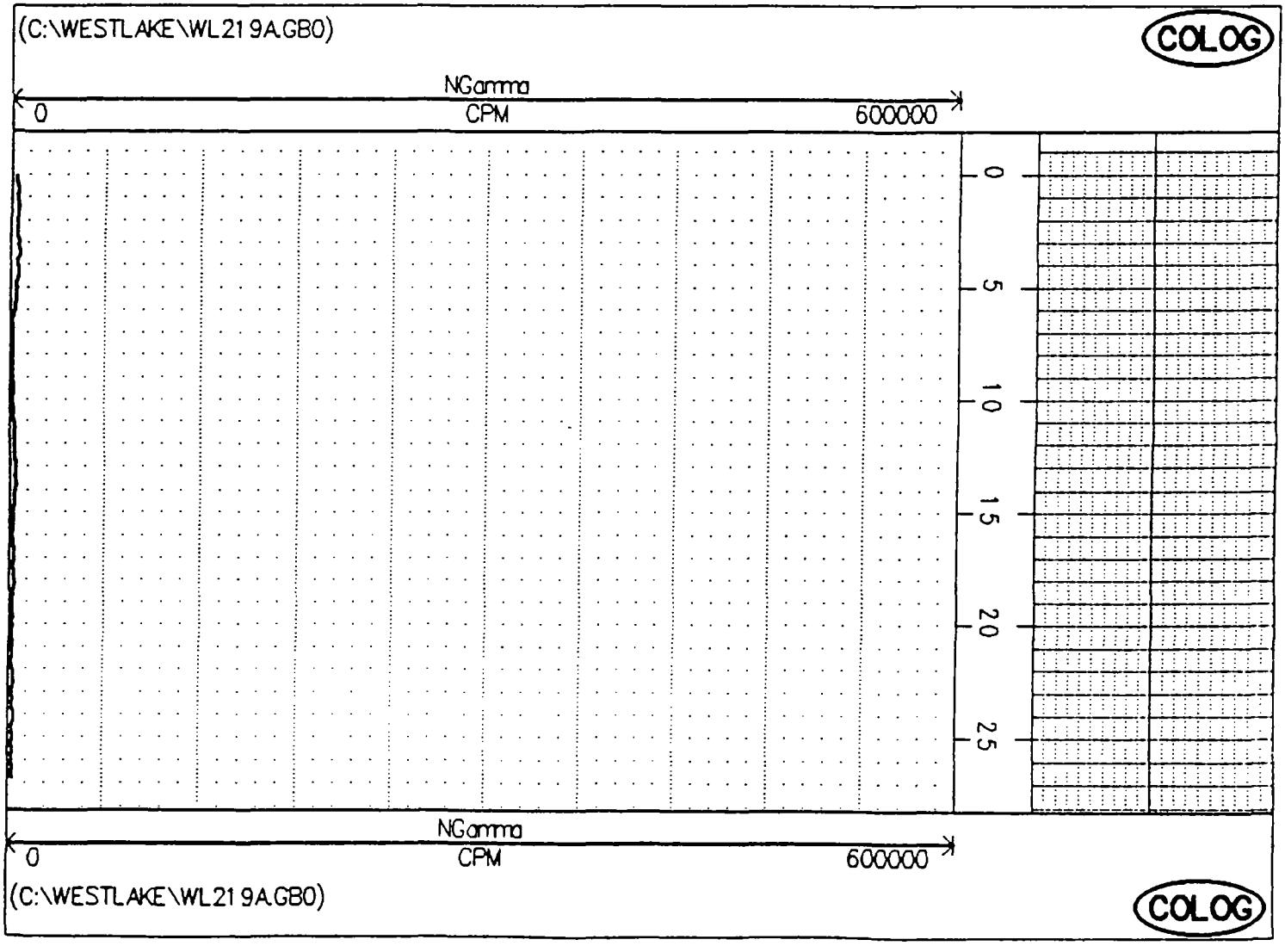
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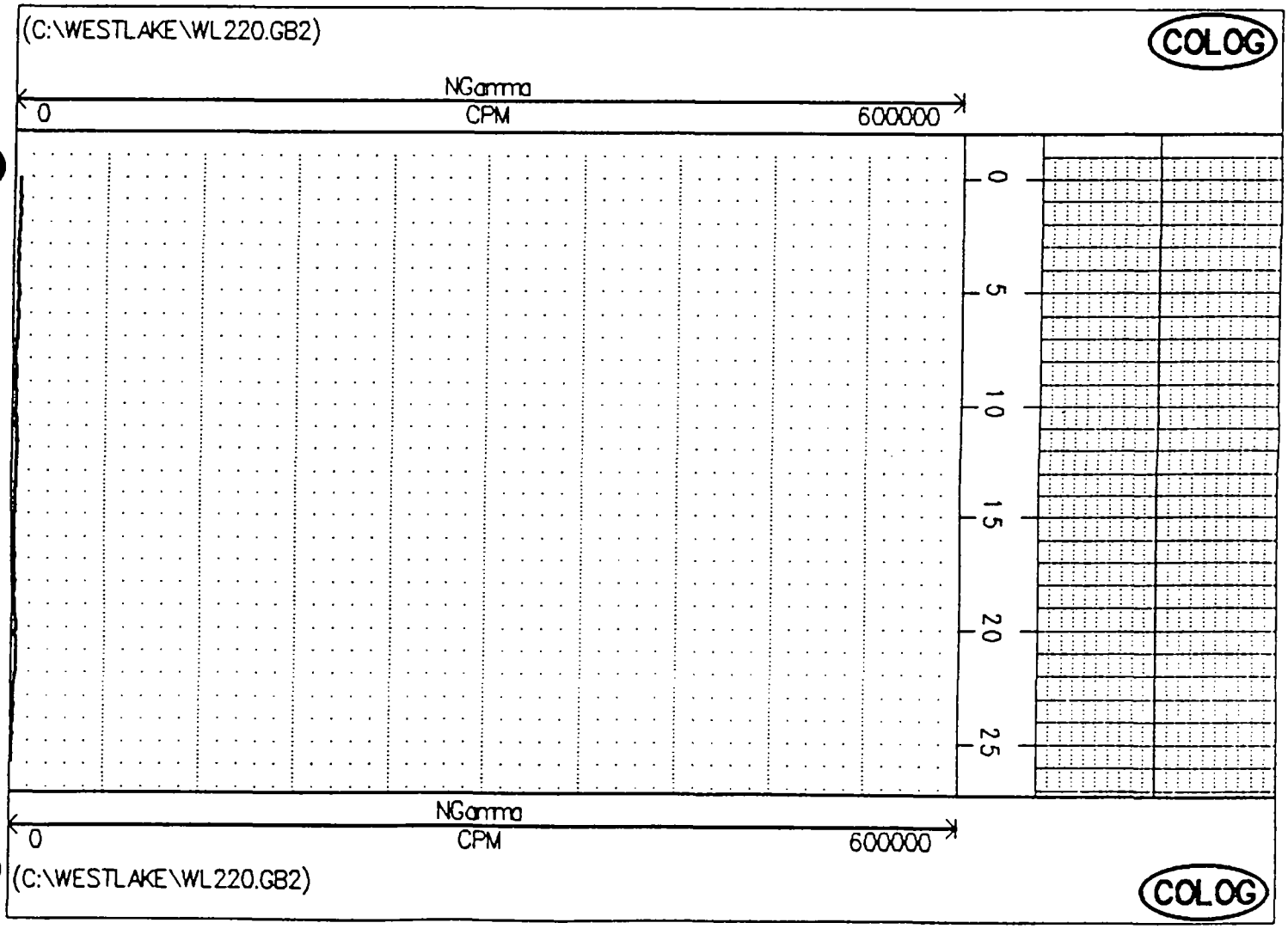
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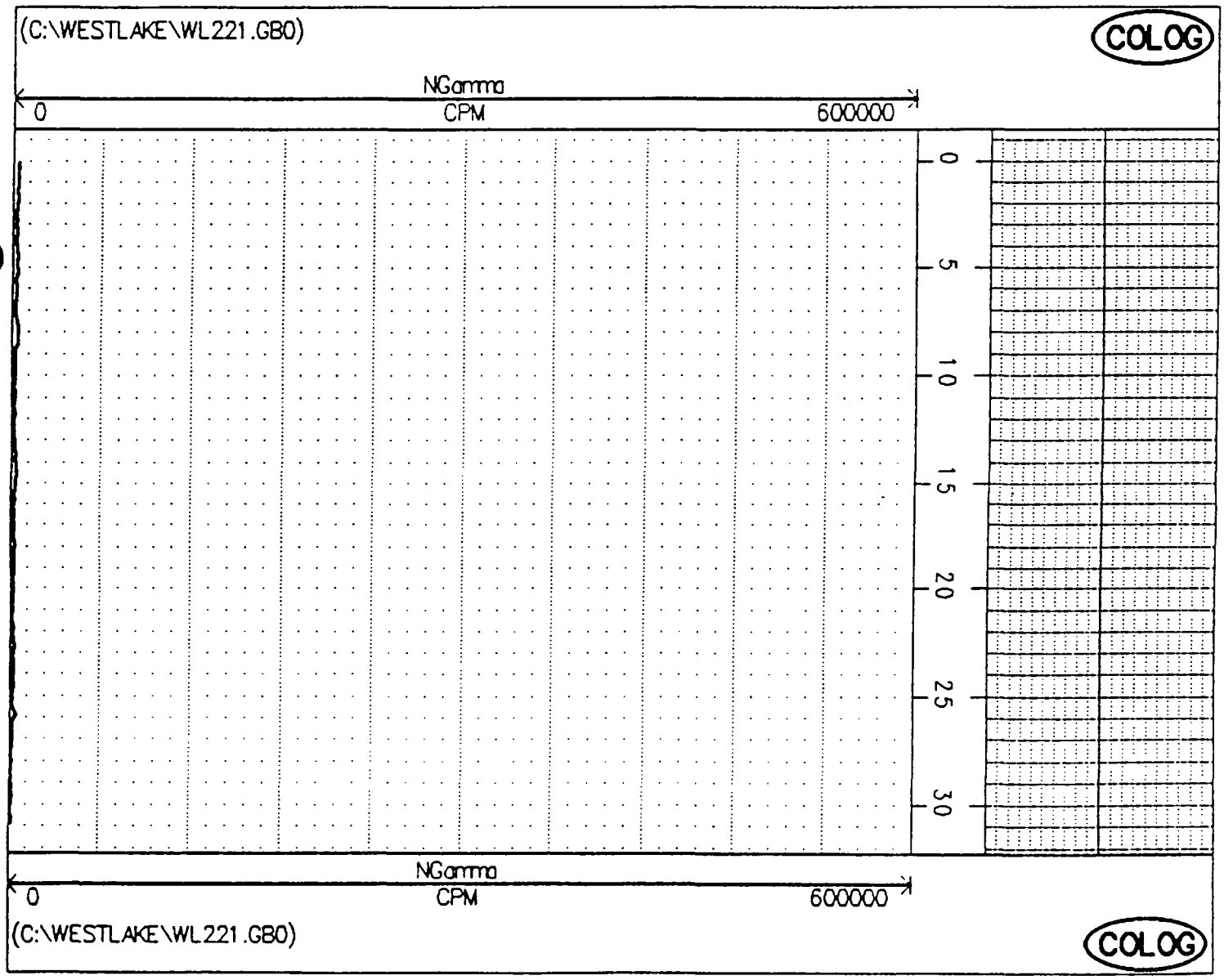
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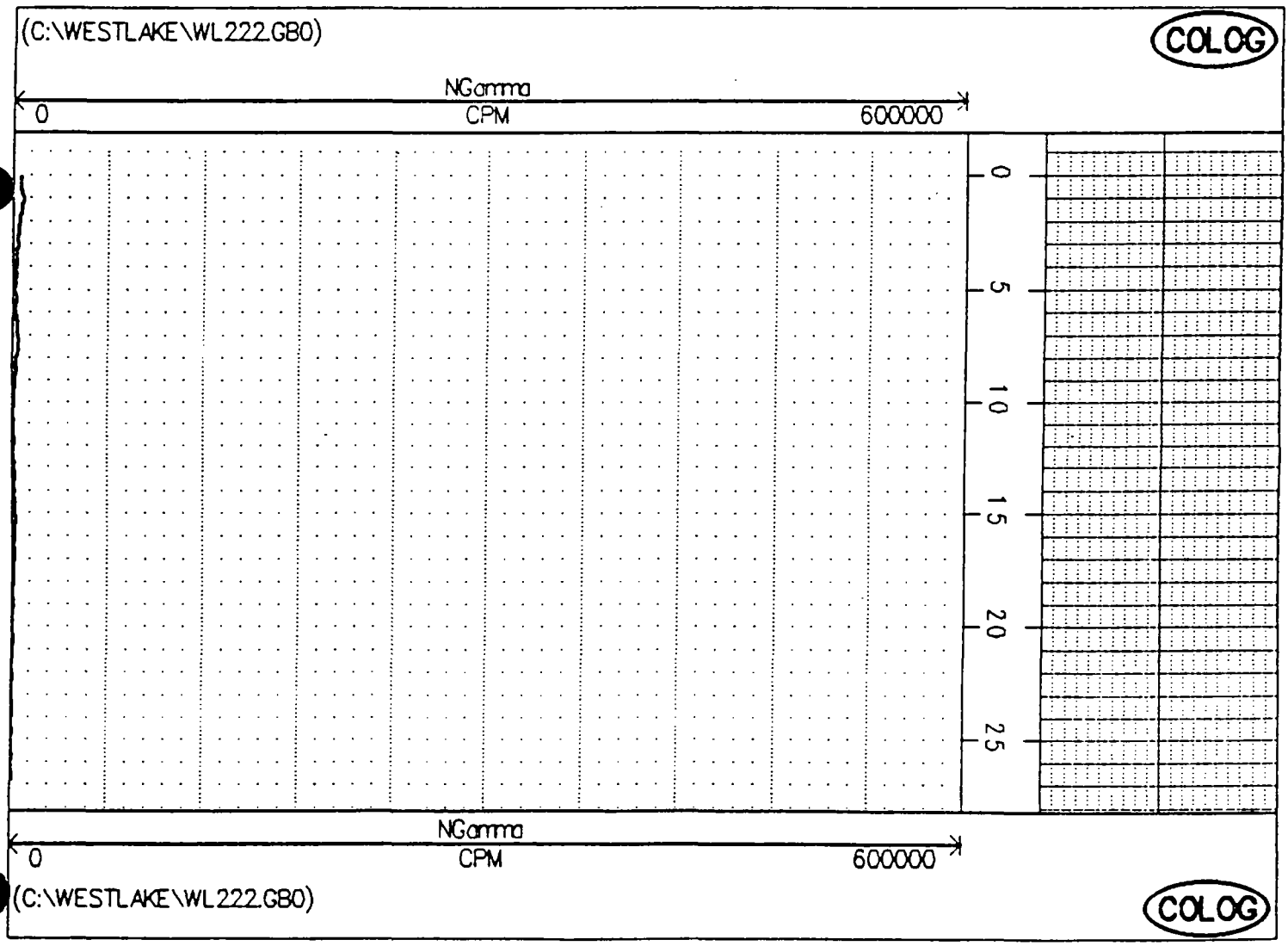
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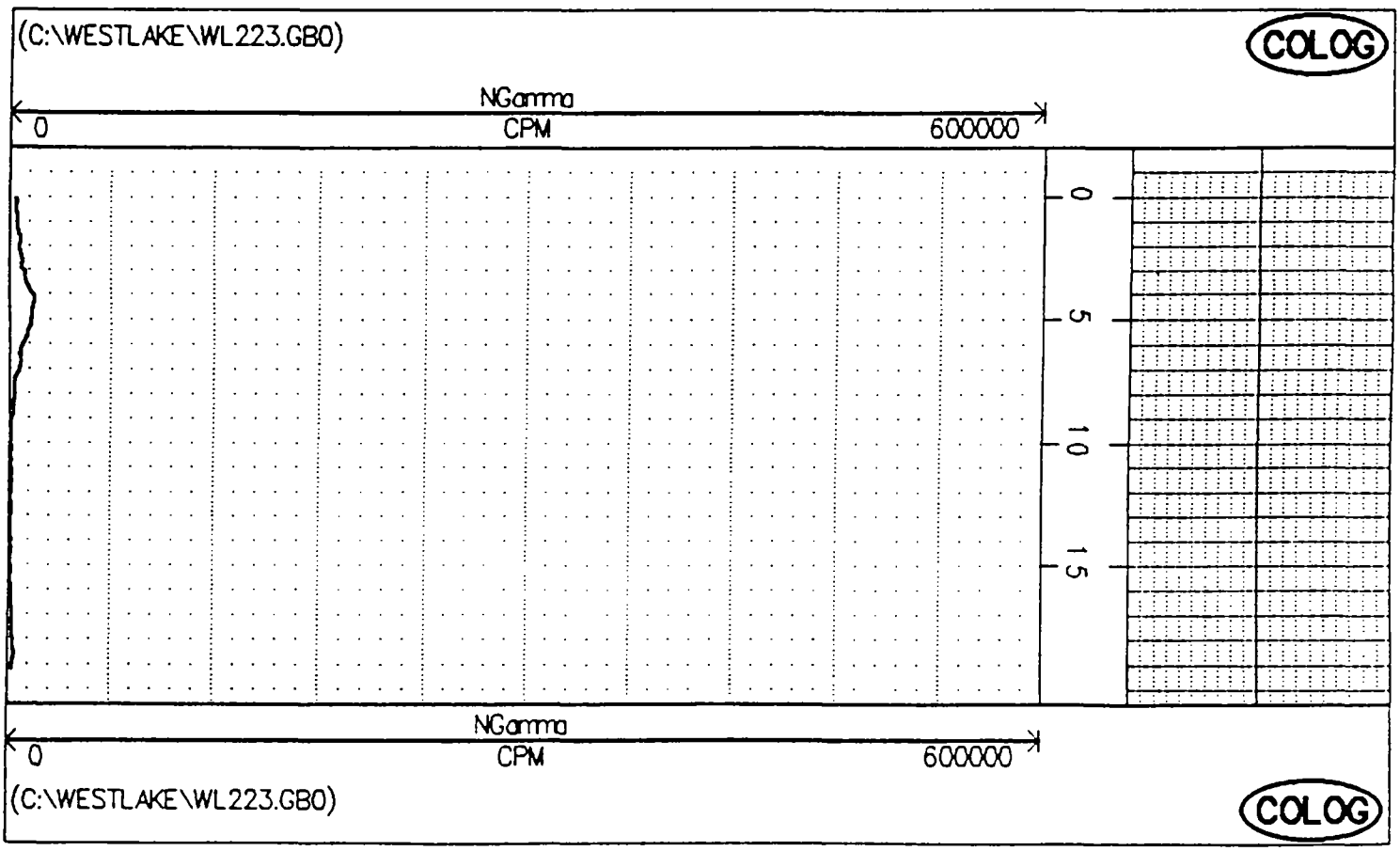
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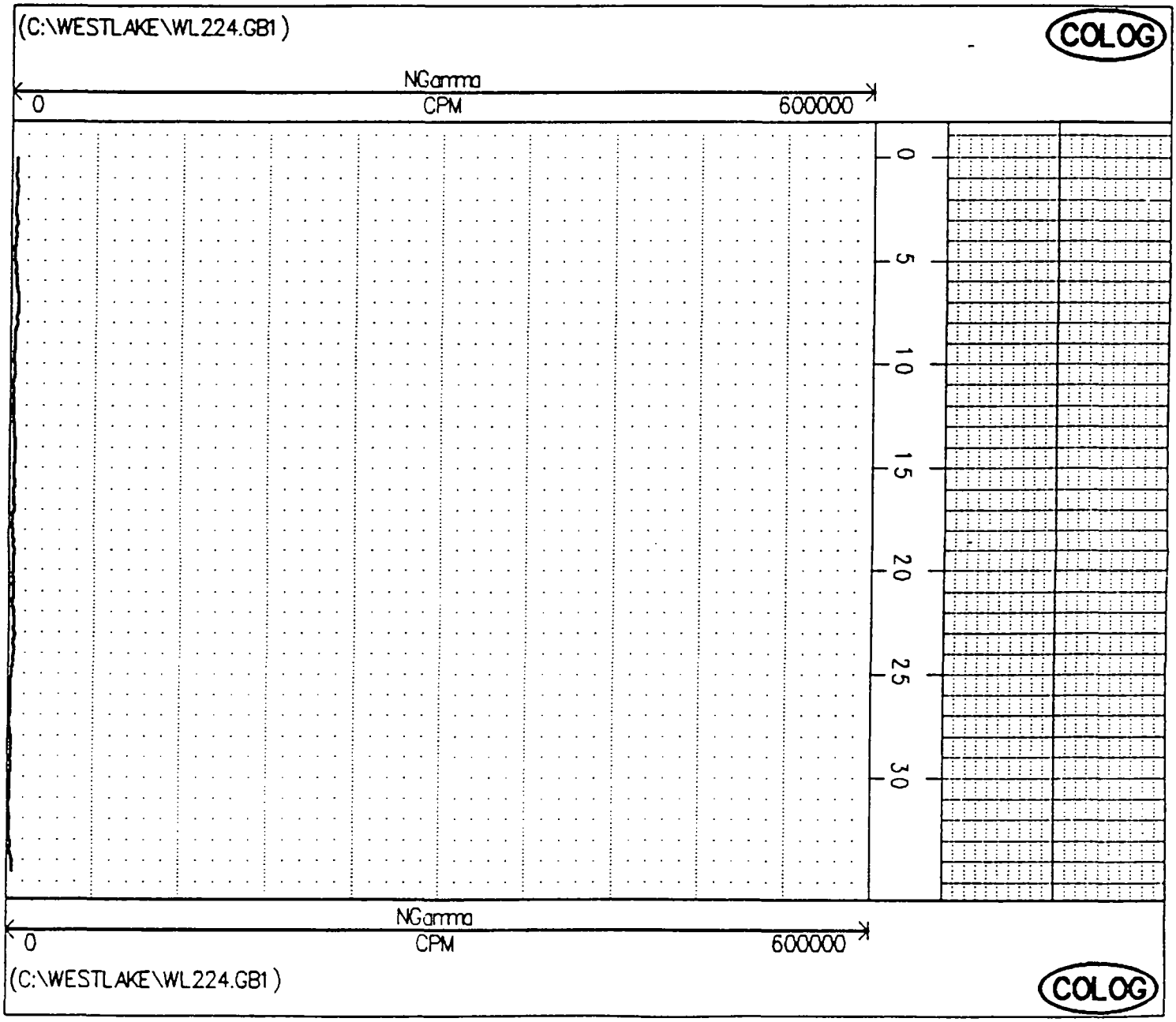
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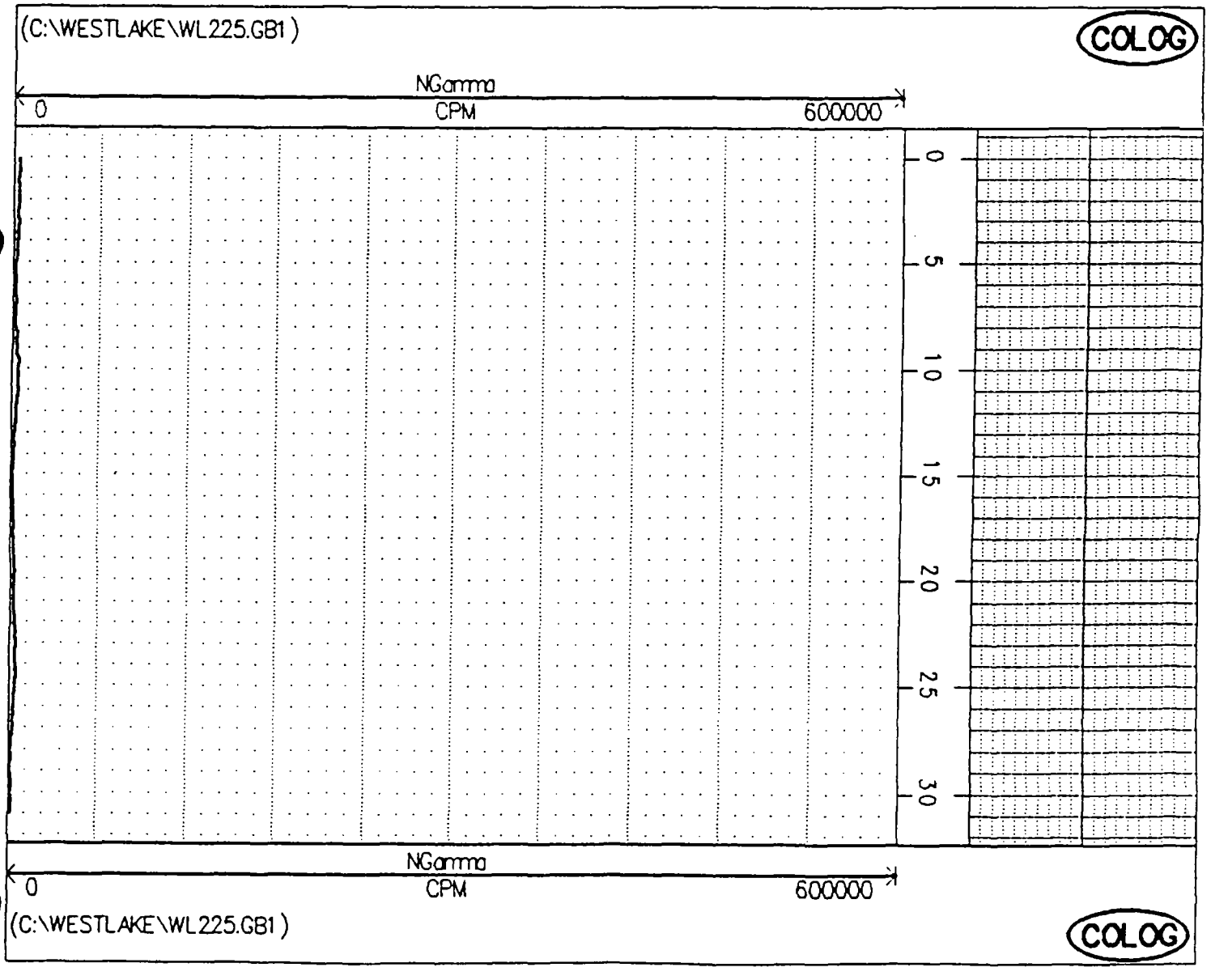
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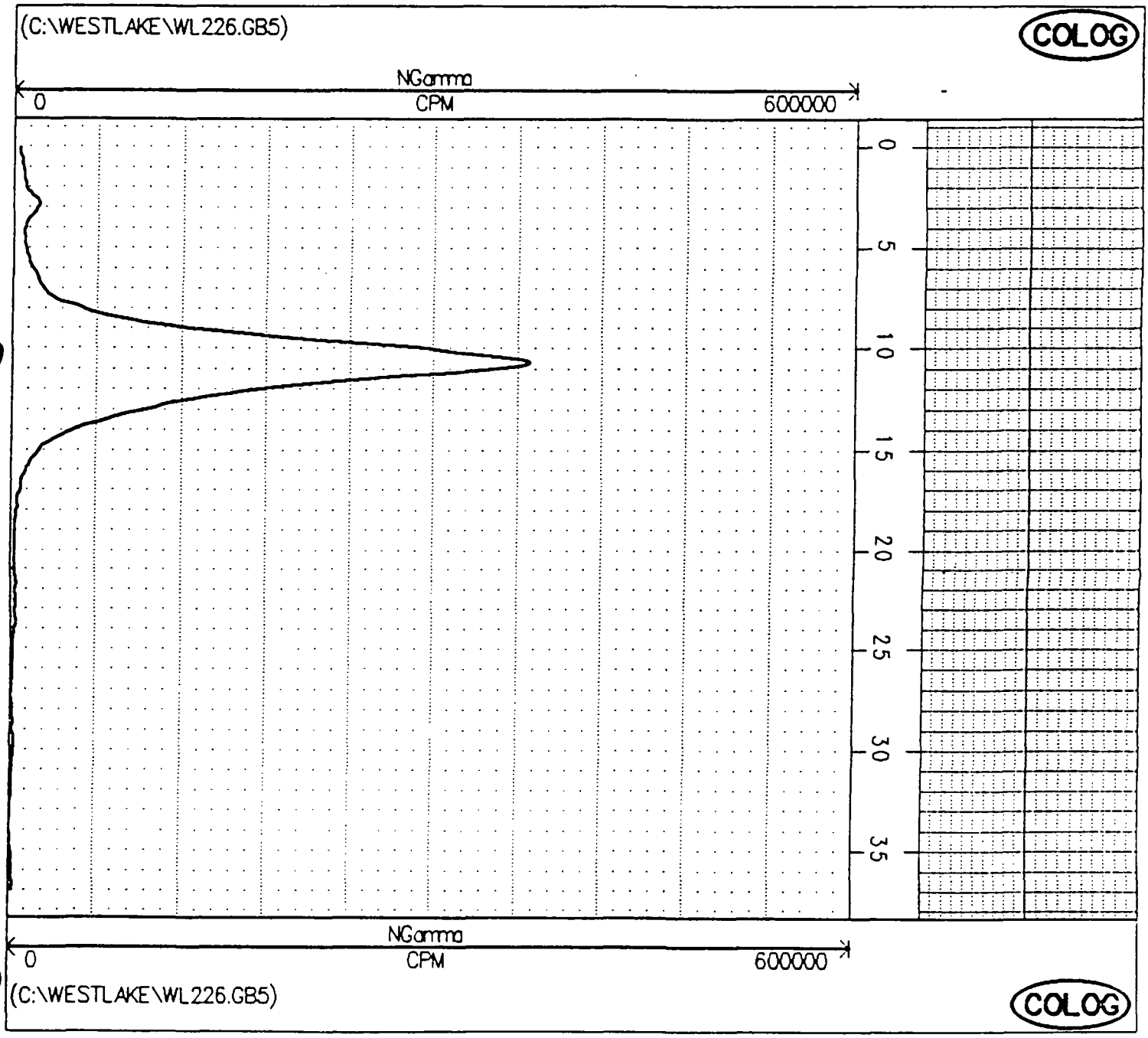
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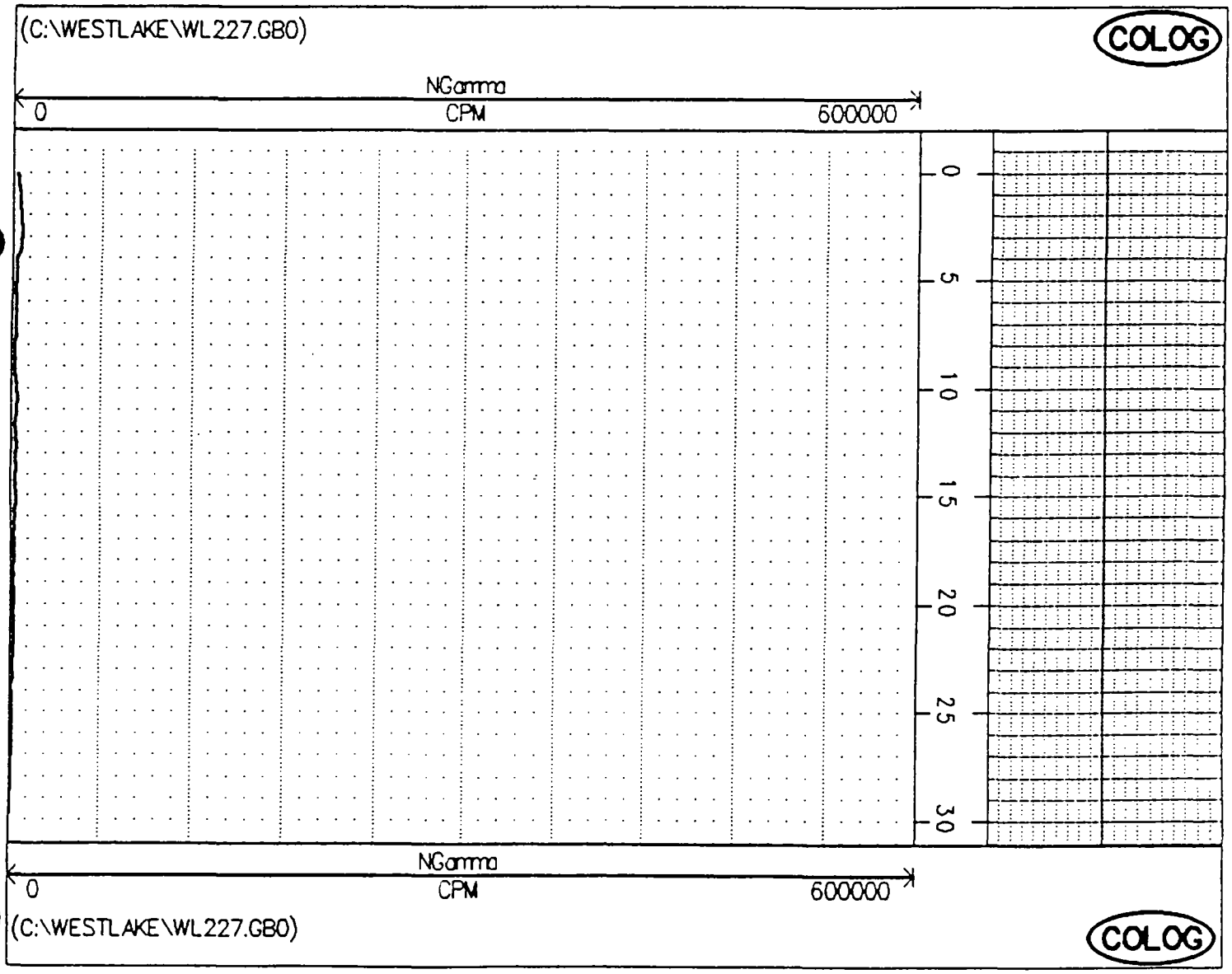
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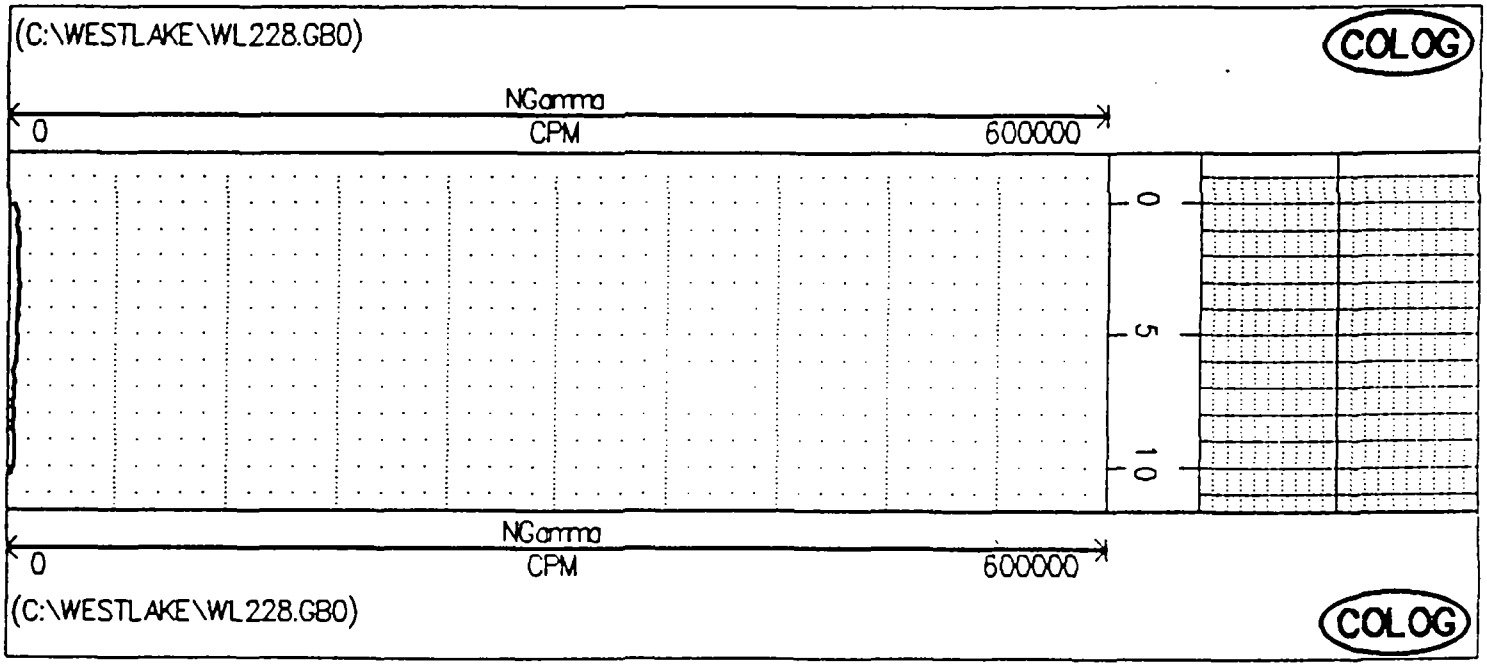
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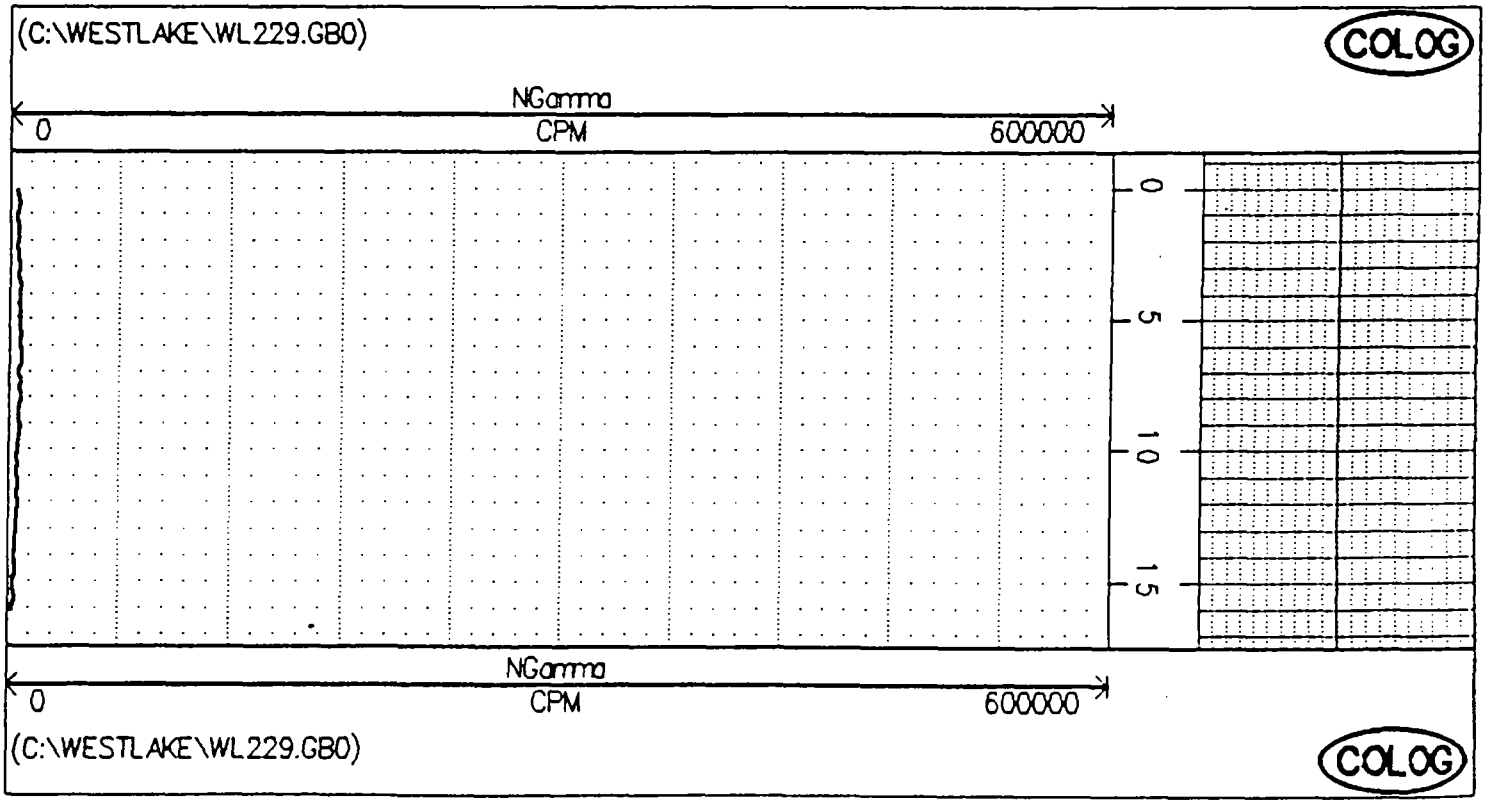
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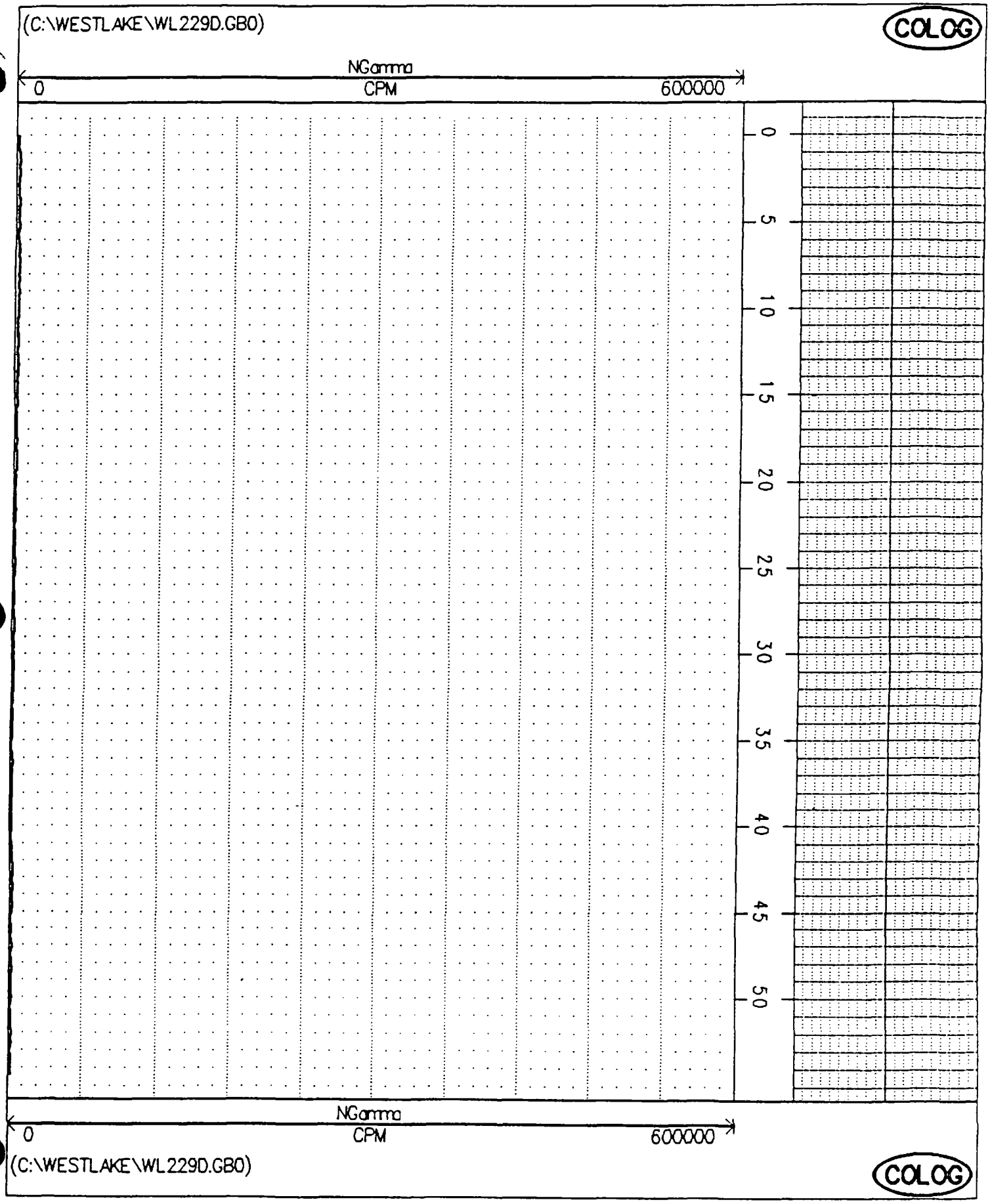
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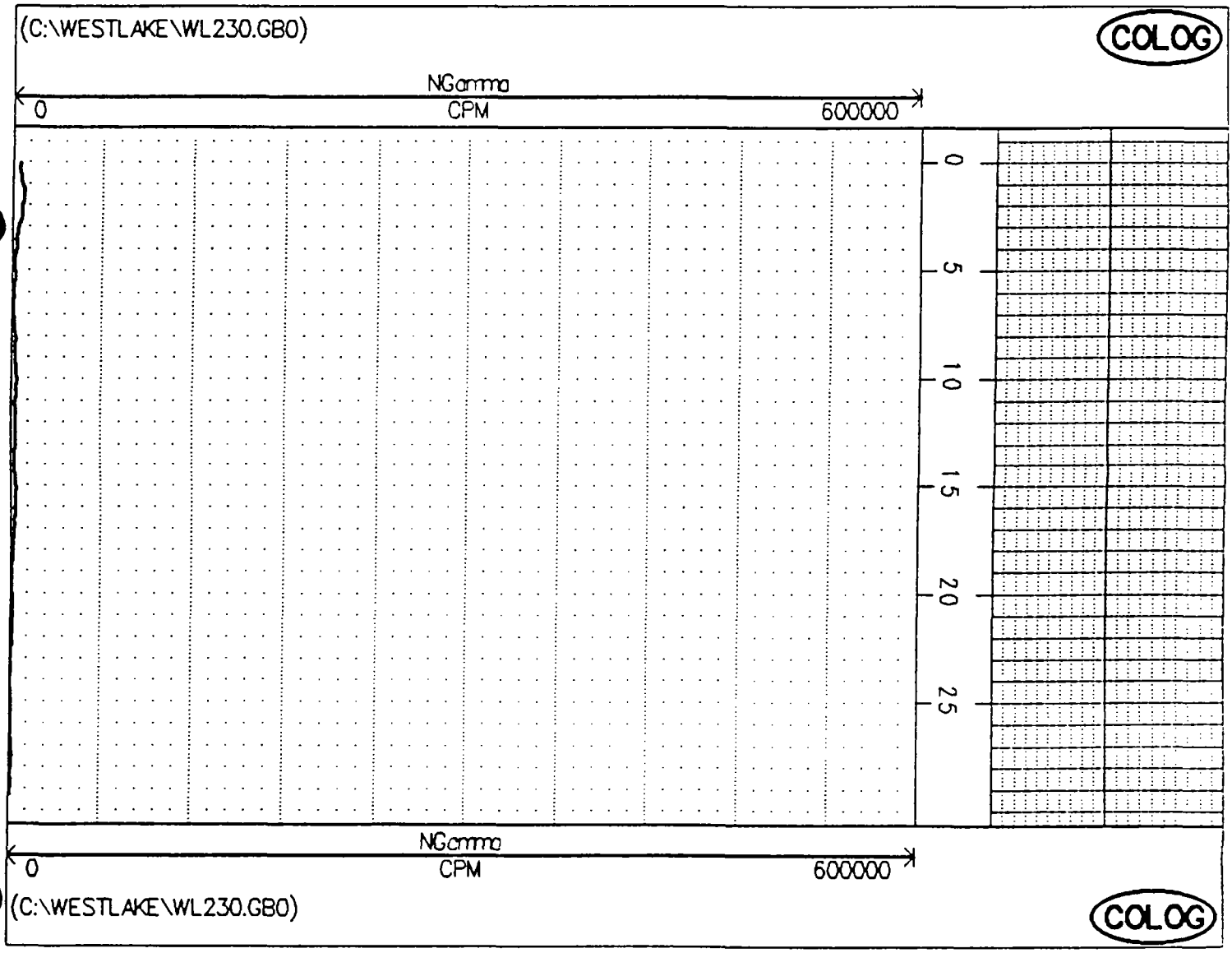
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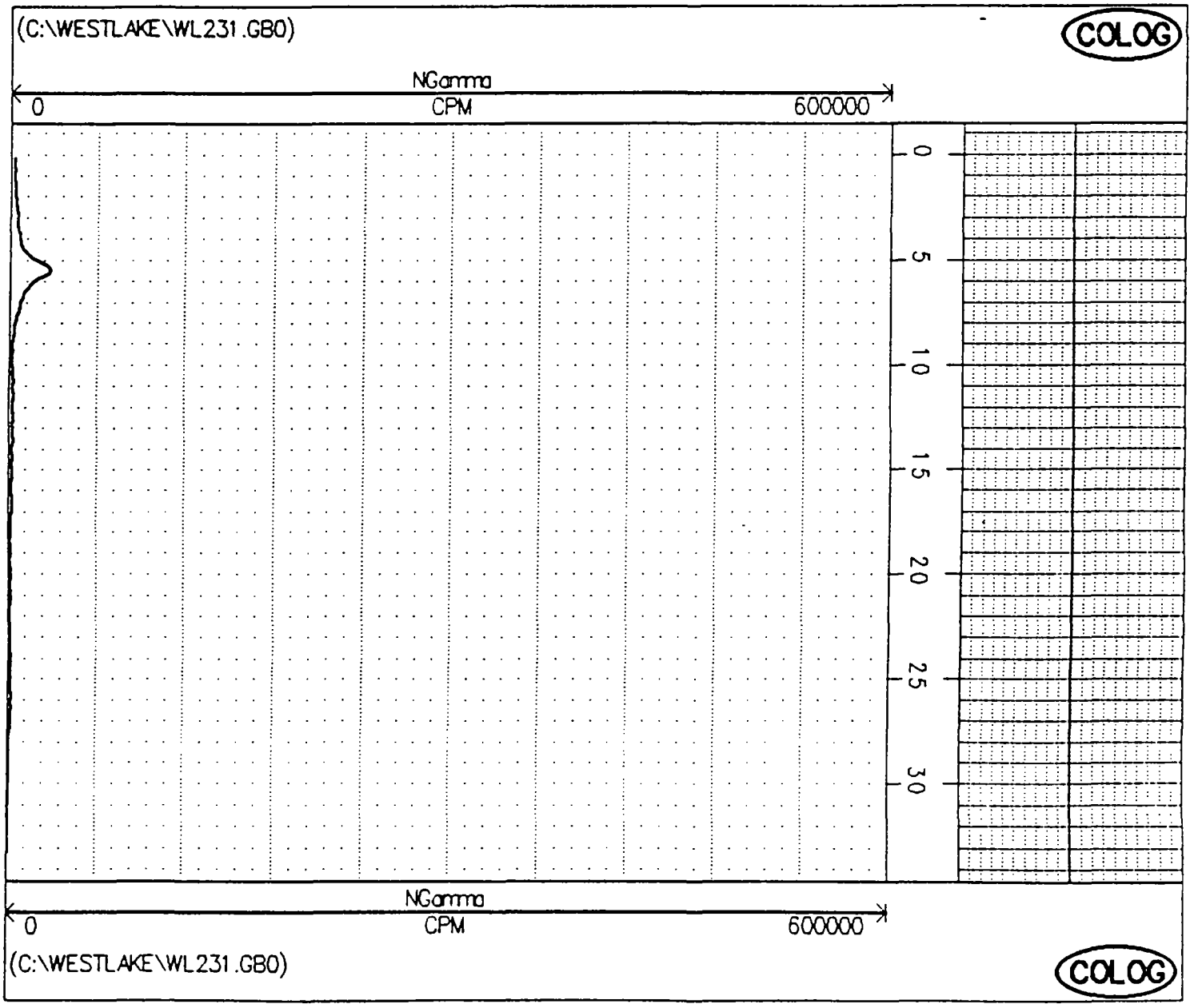
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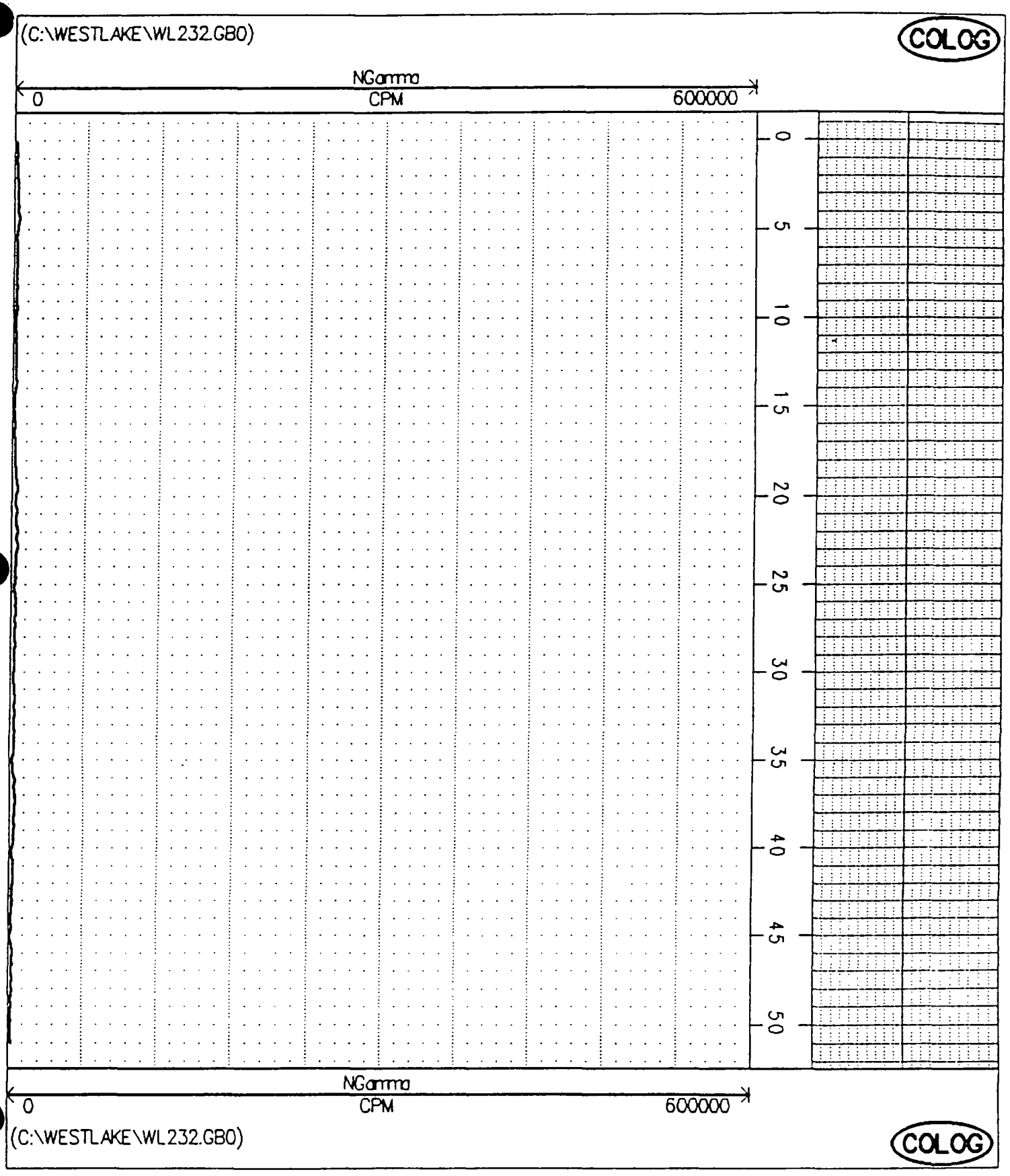
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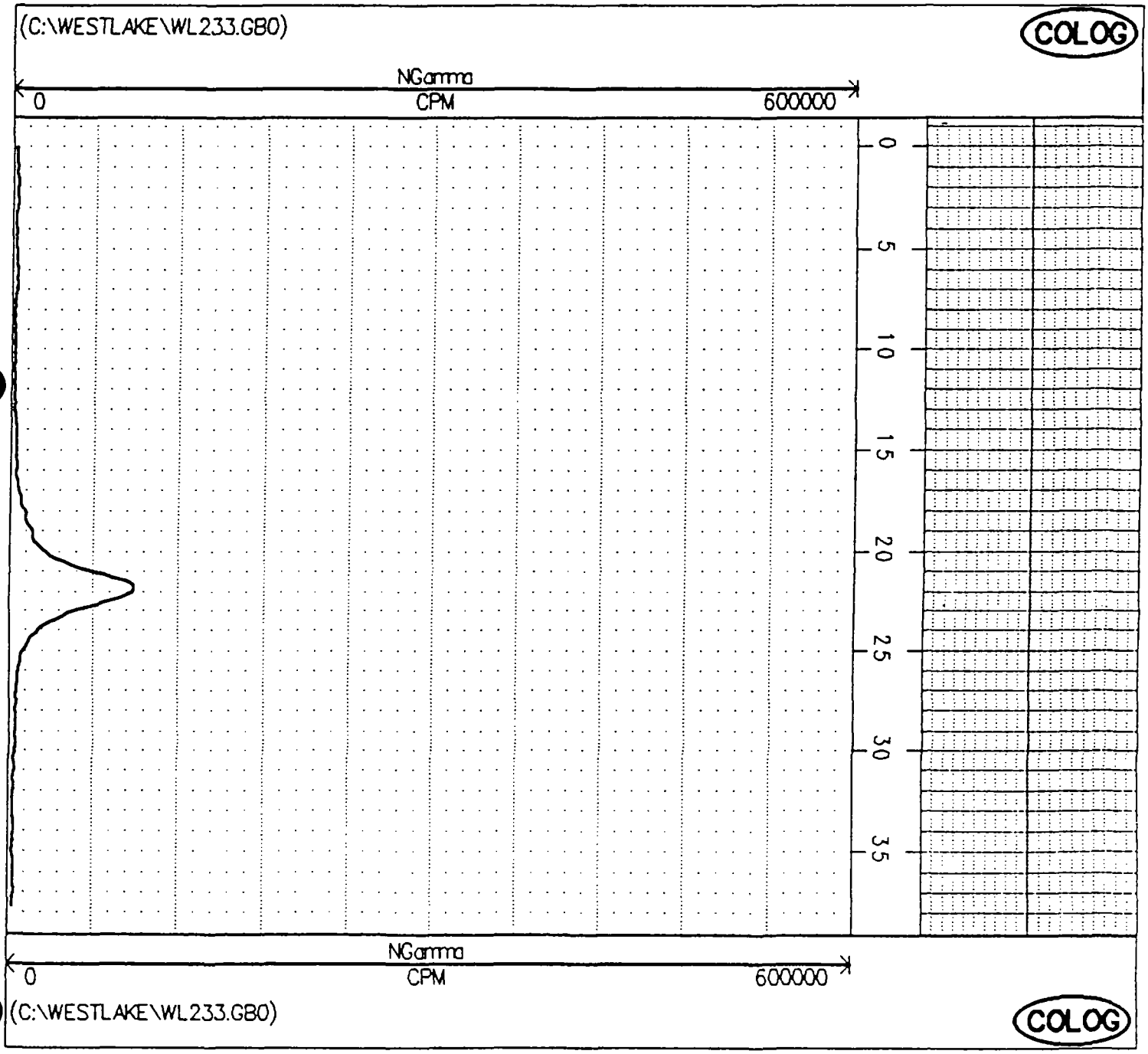
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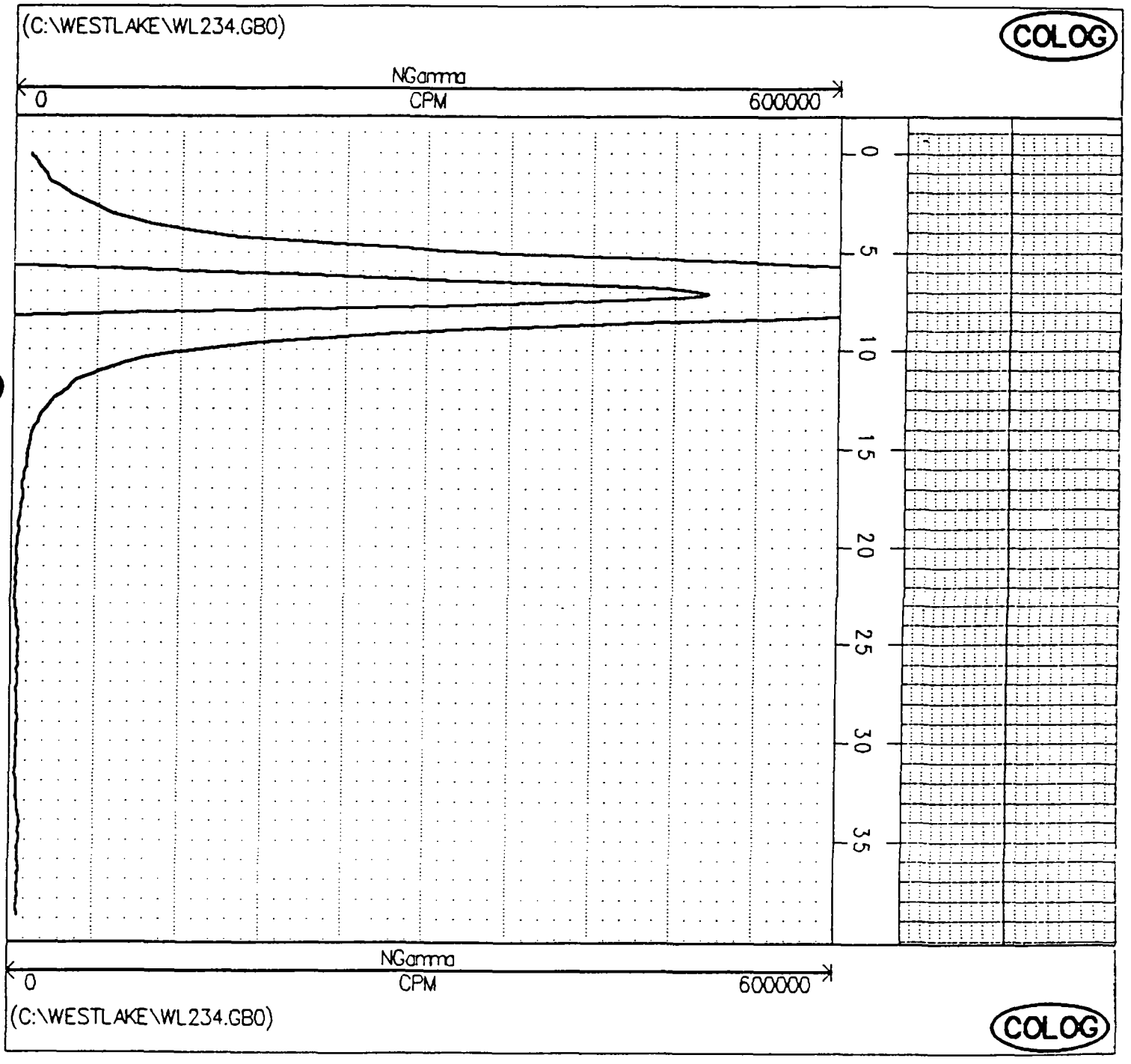
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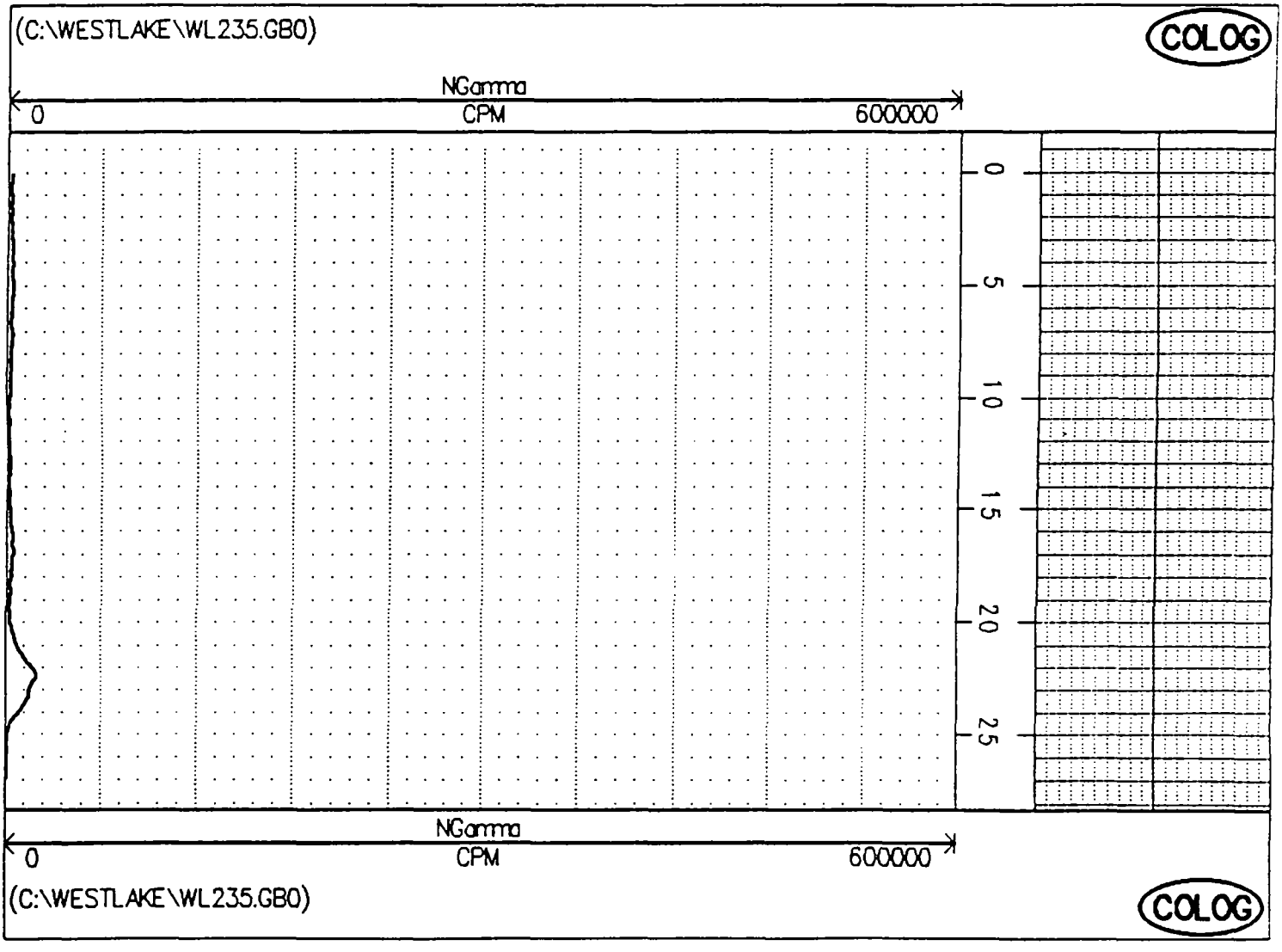
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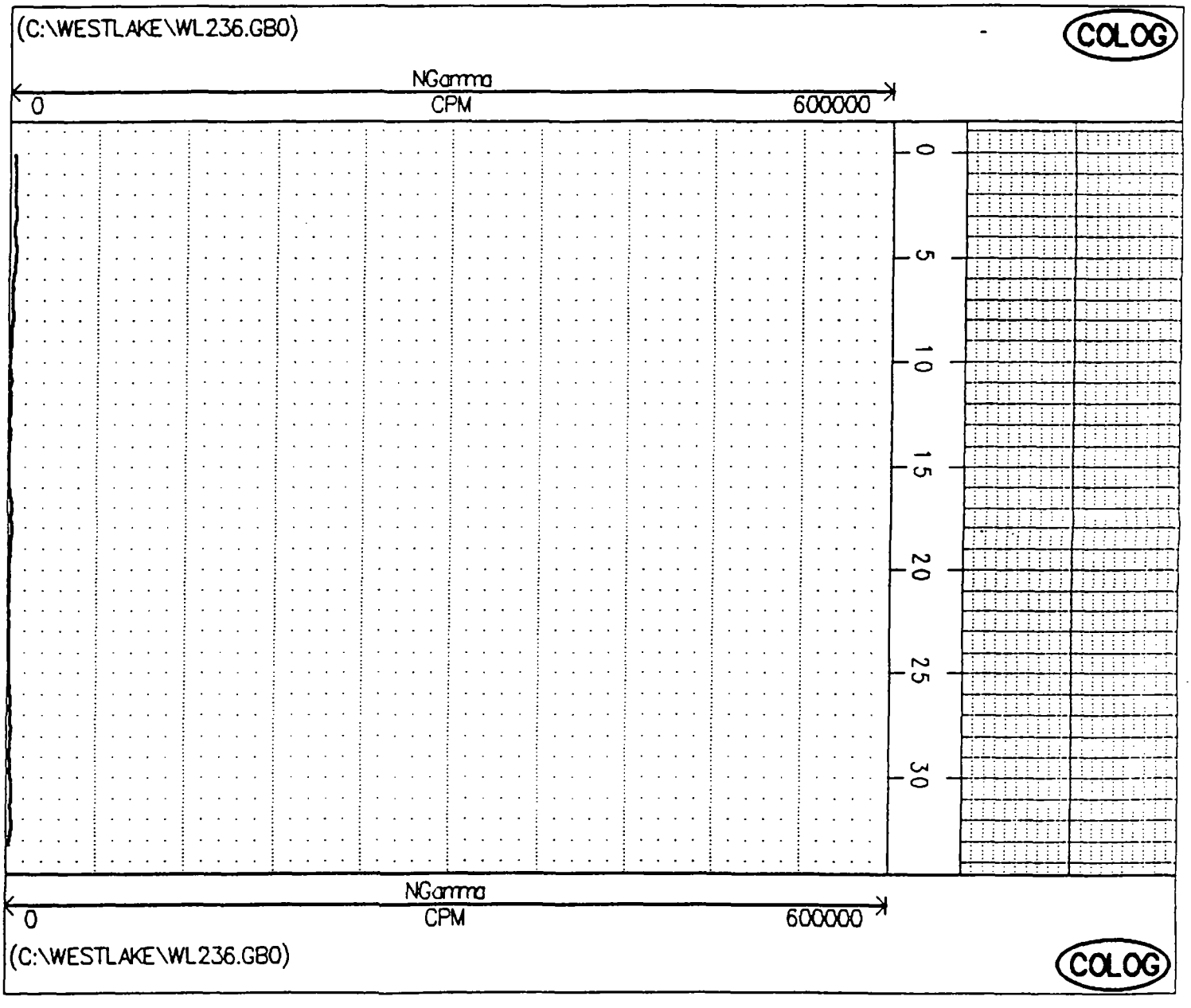
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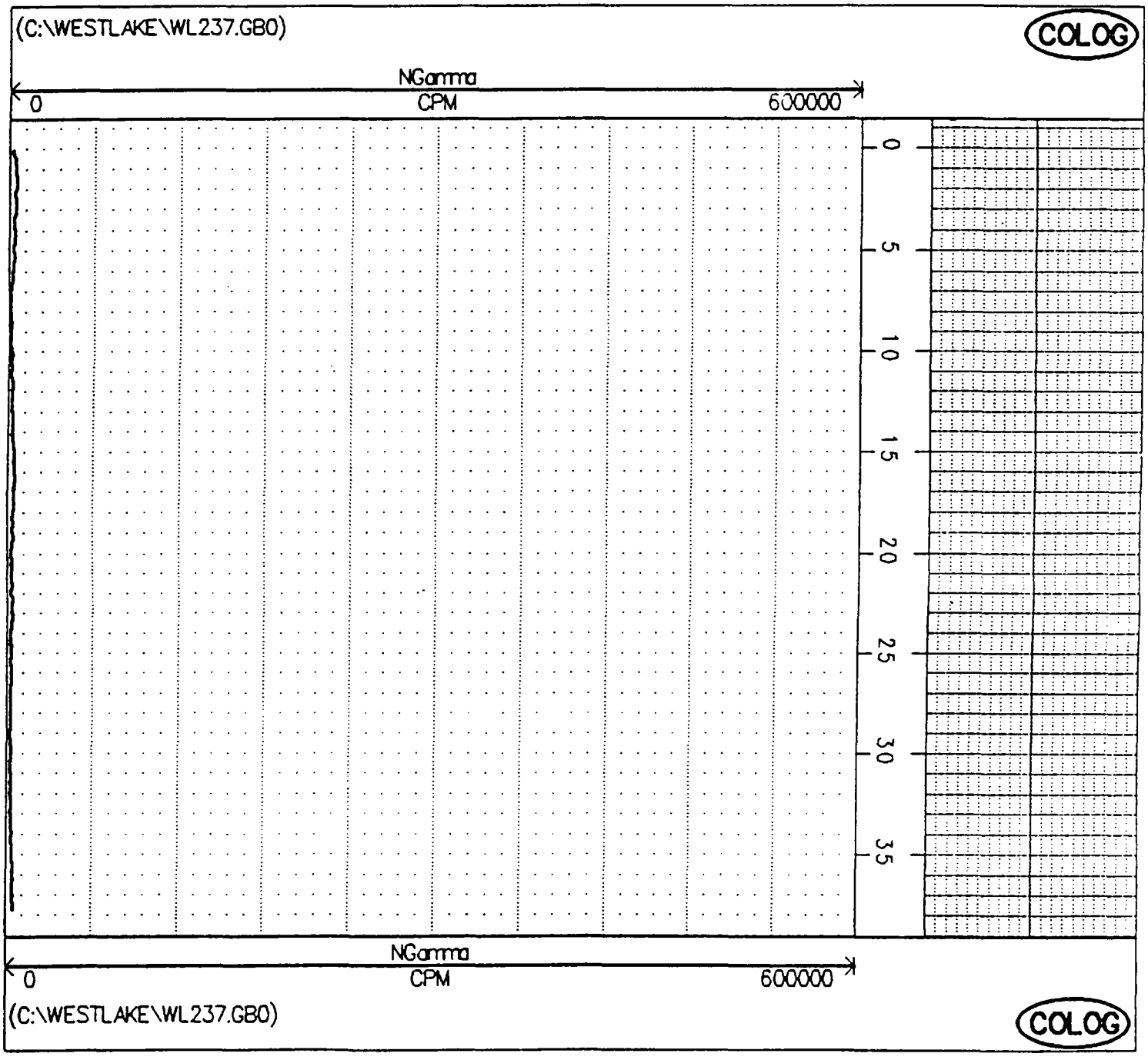
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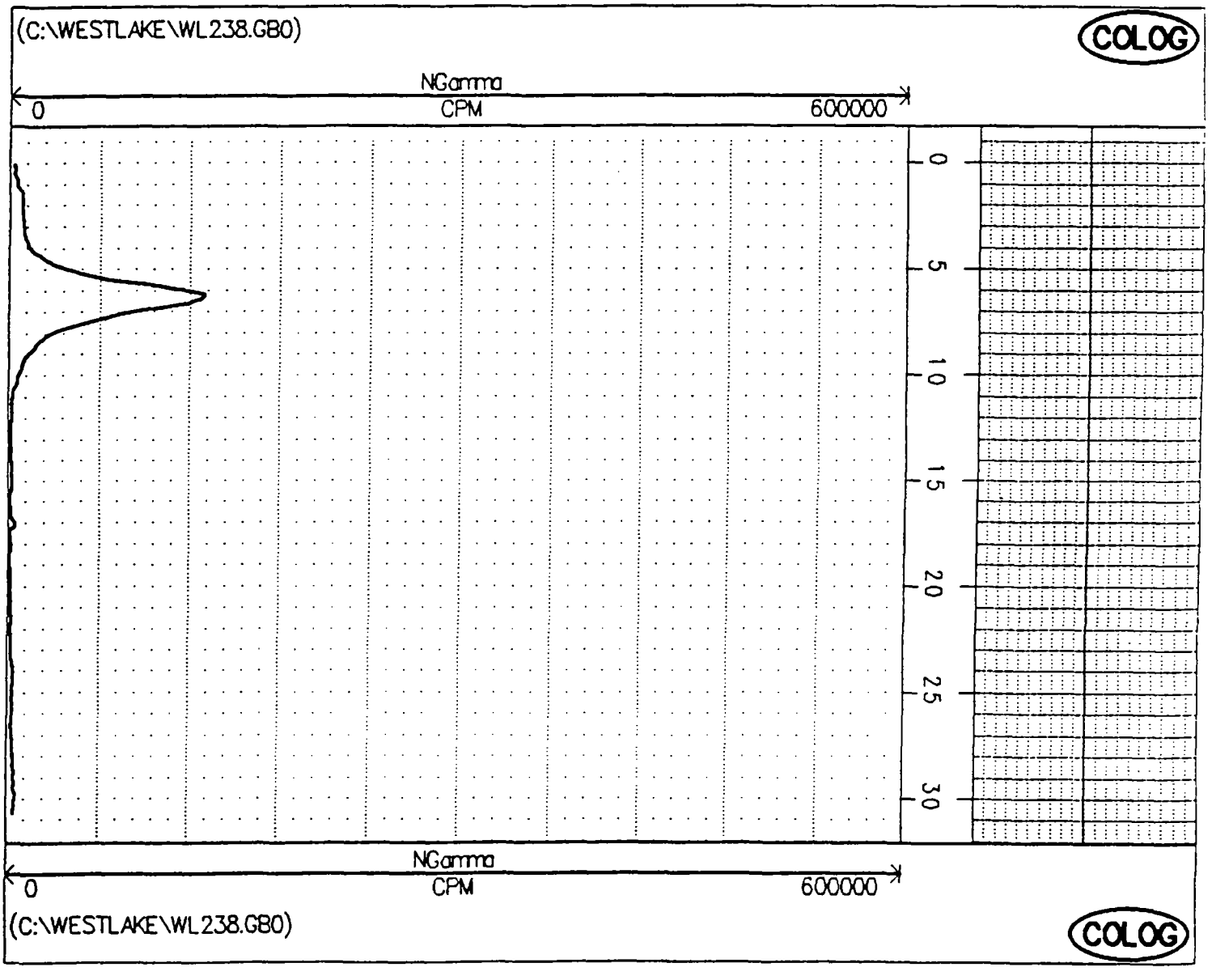
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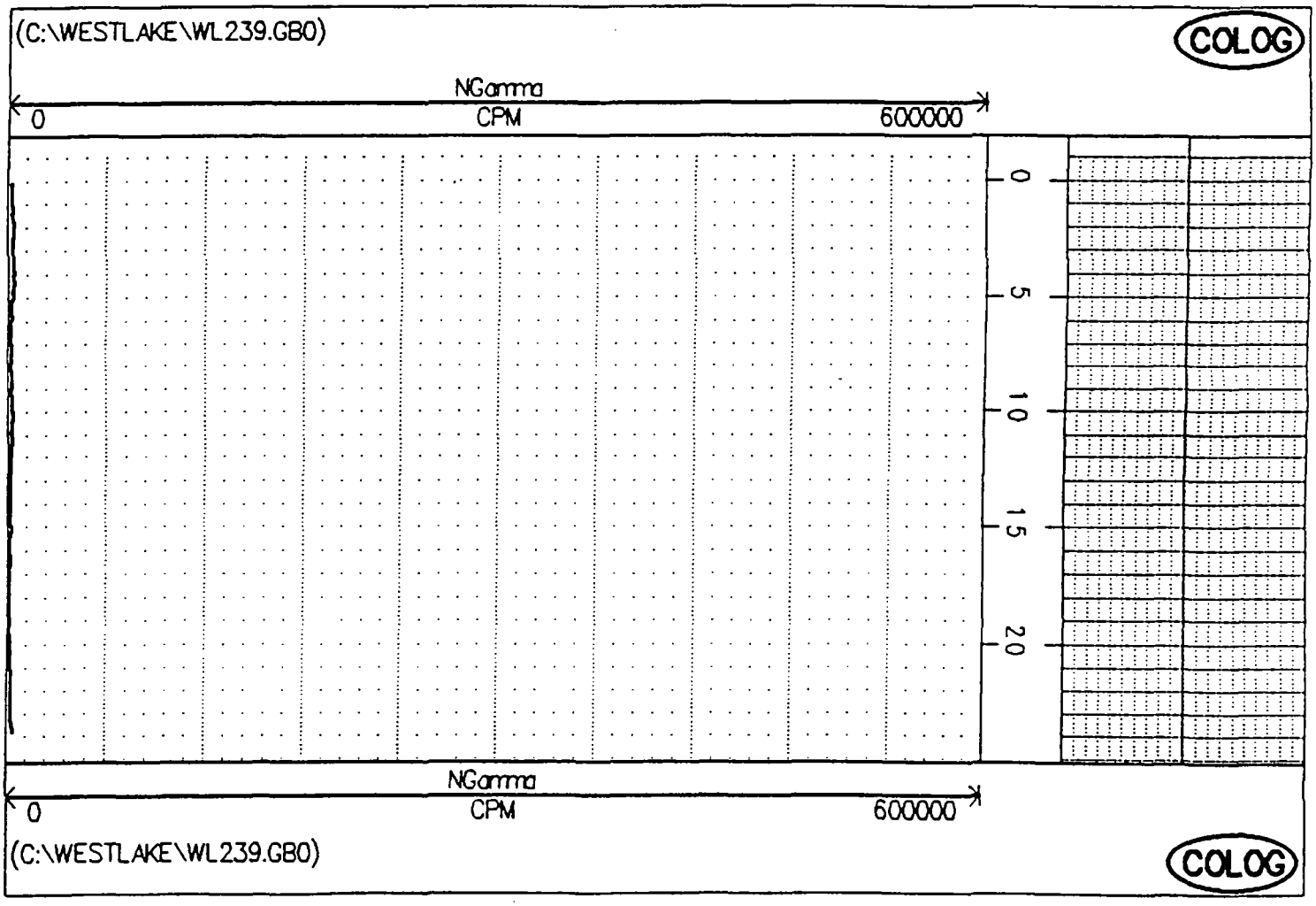
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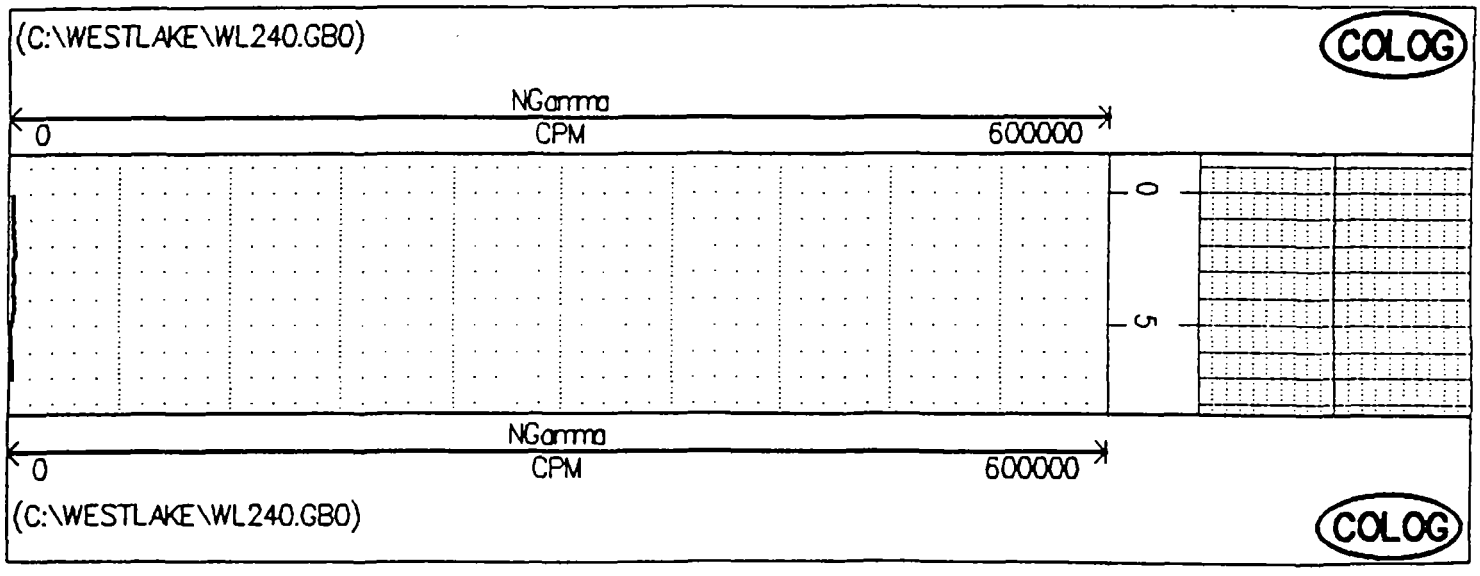
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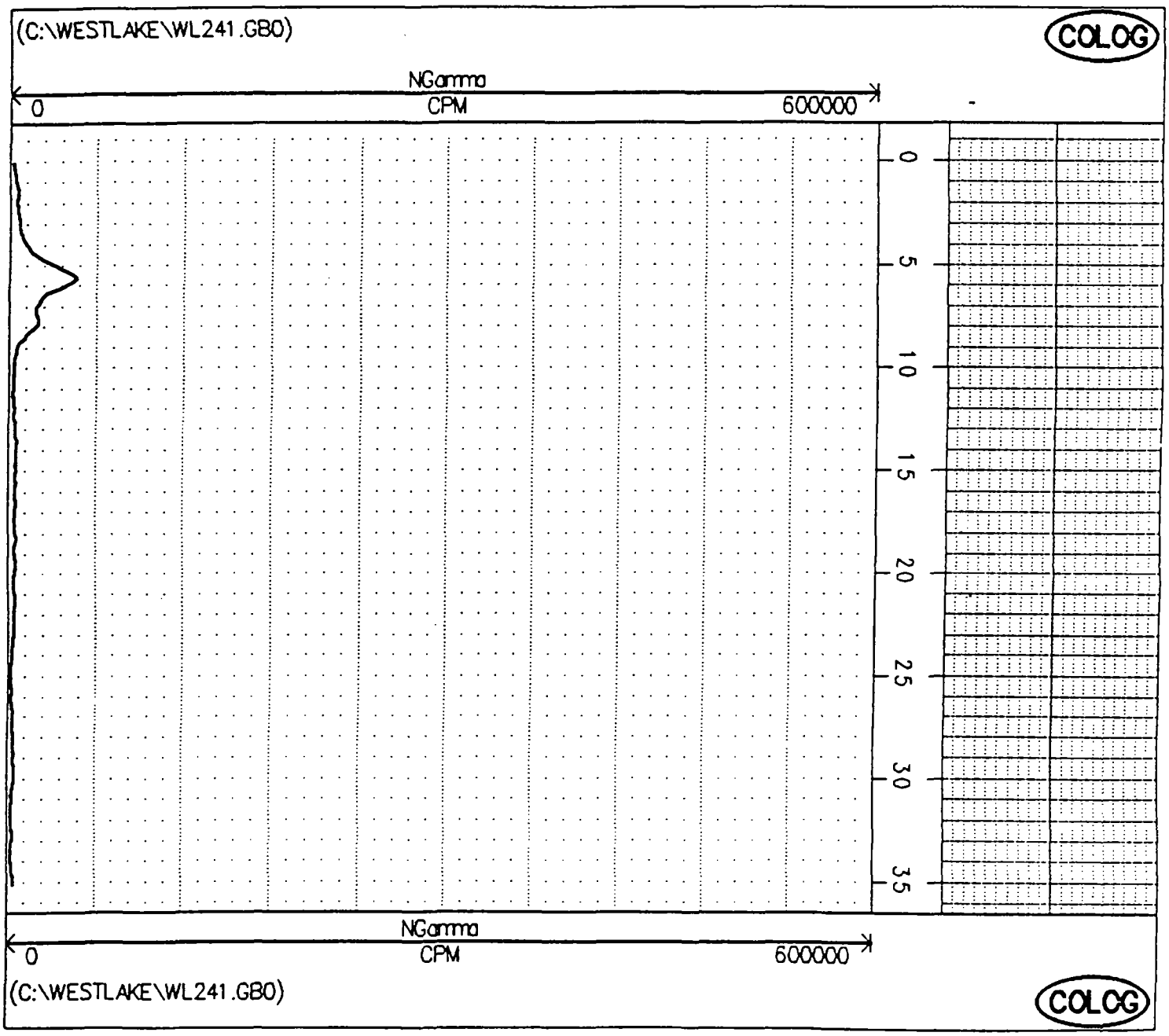
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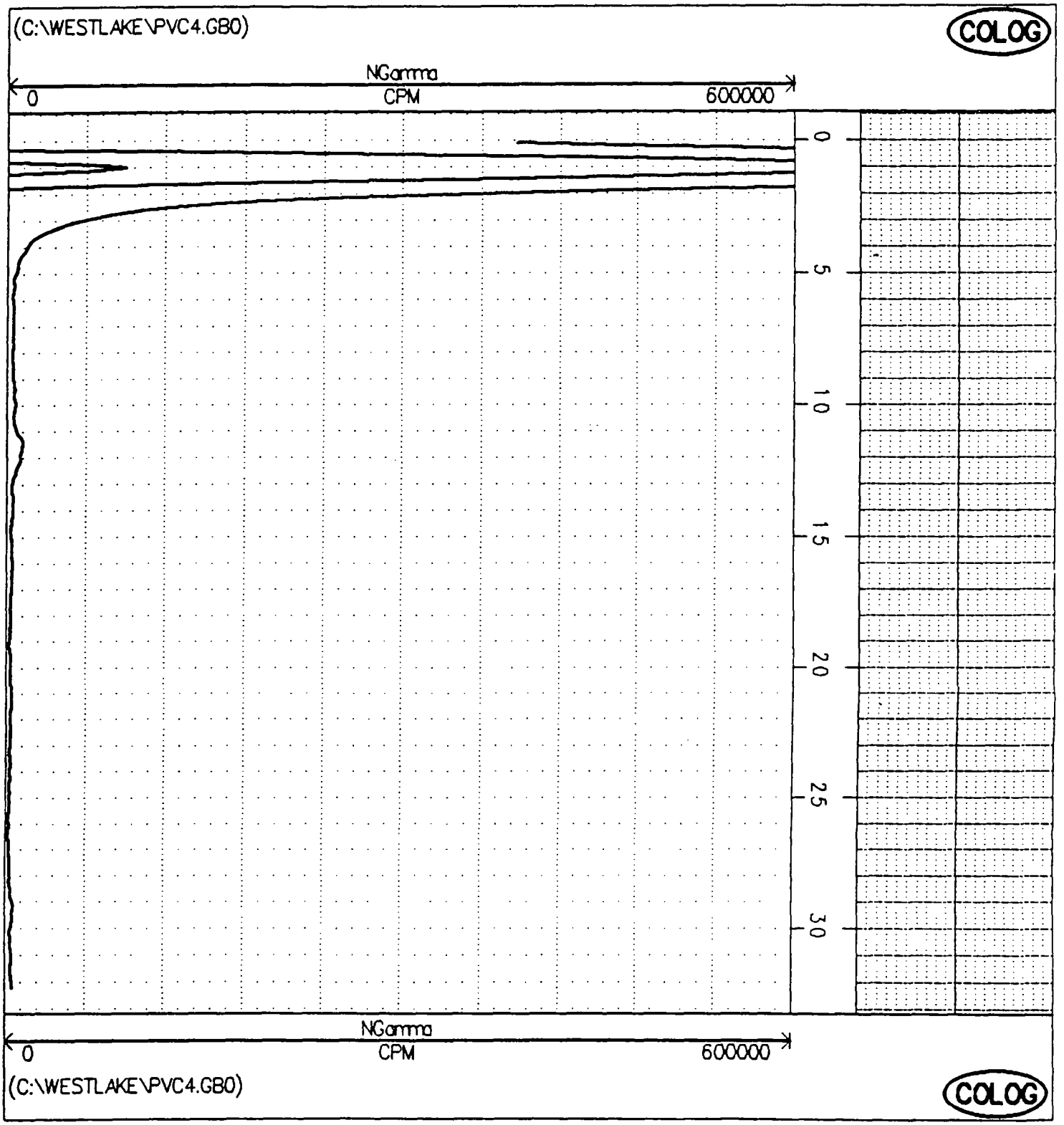
PVC Boring
Downhole Gamma Logs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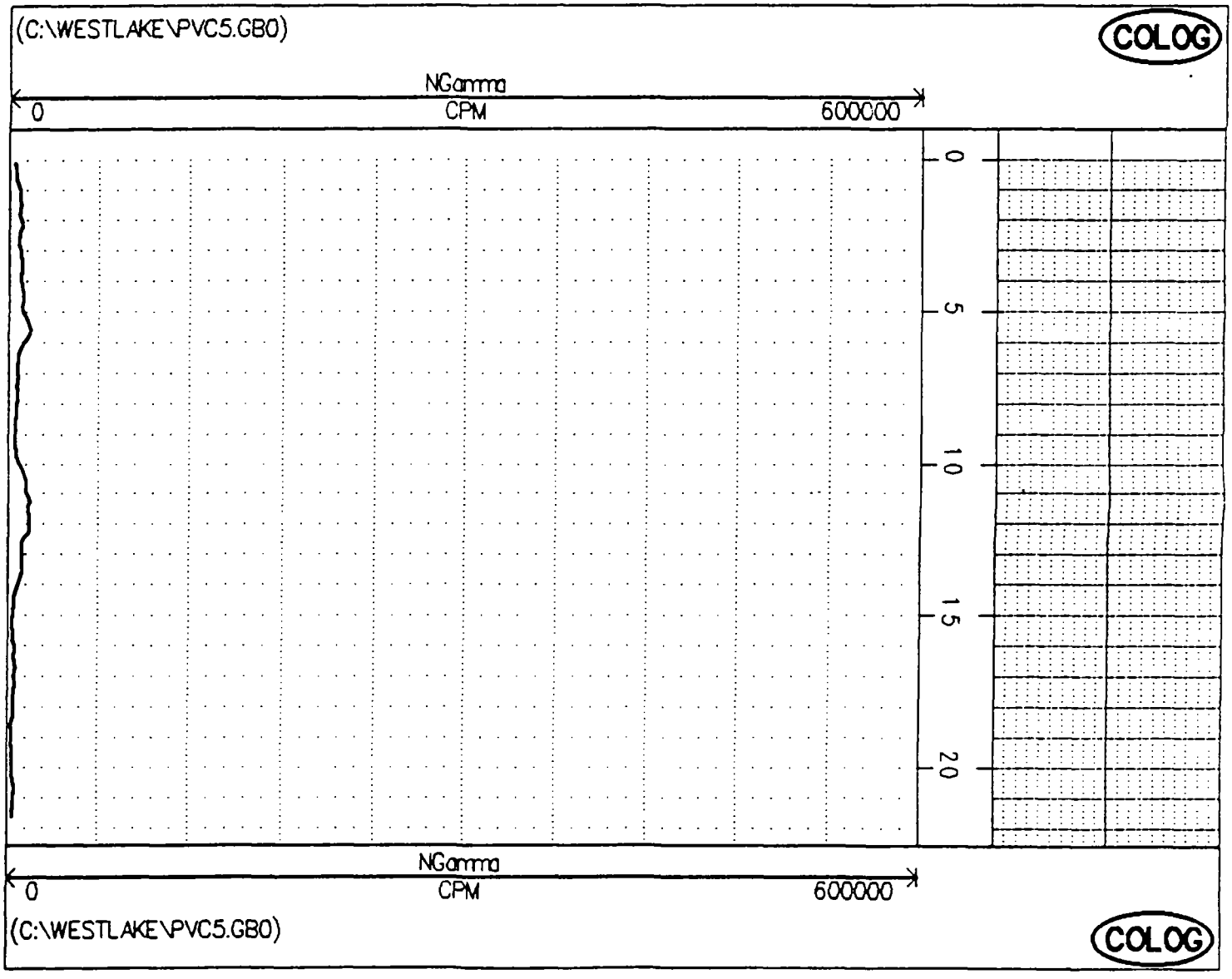
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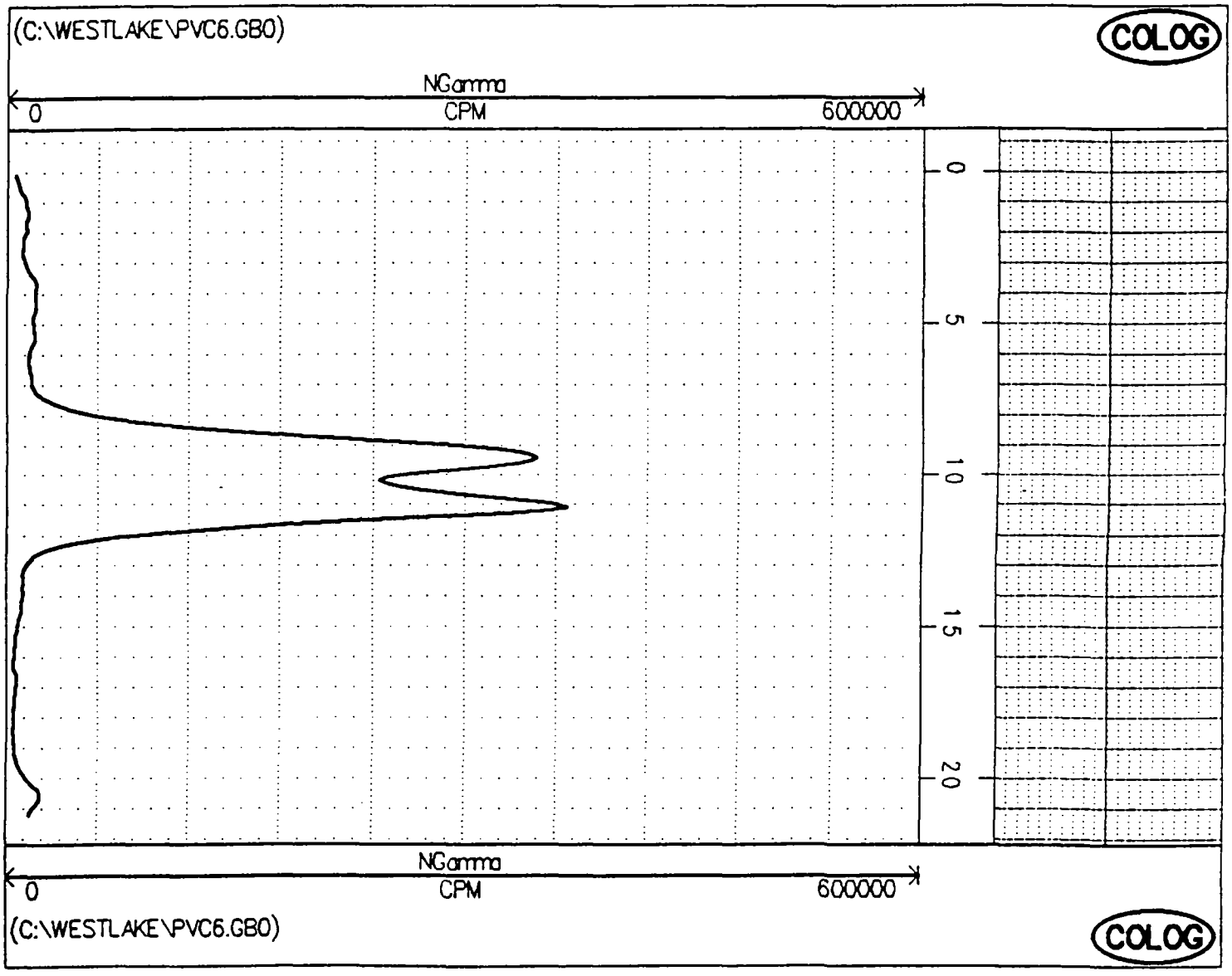
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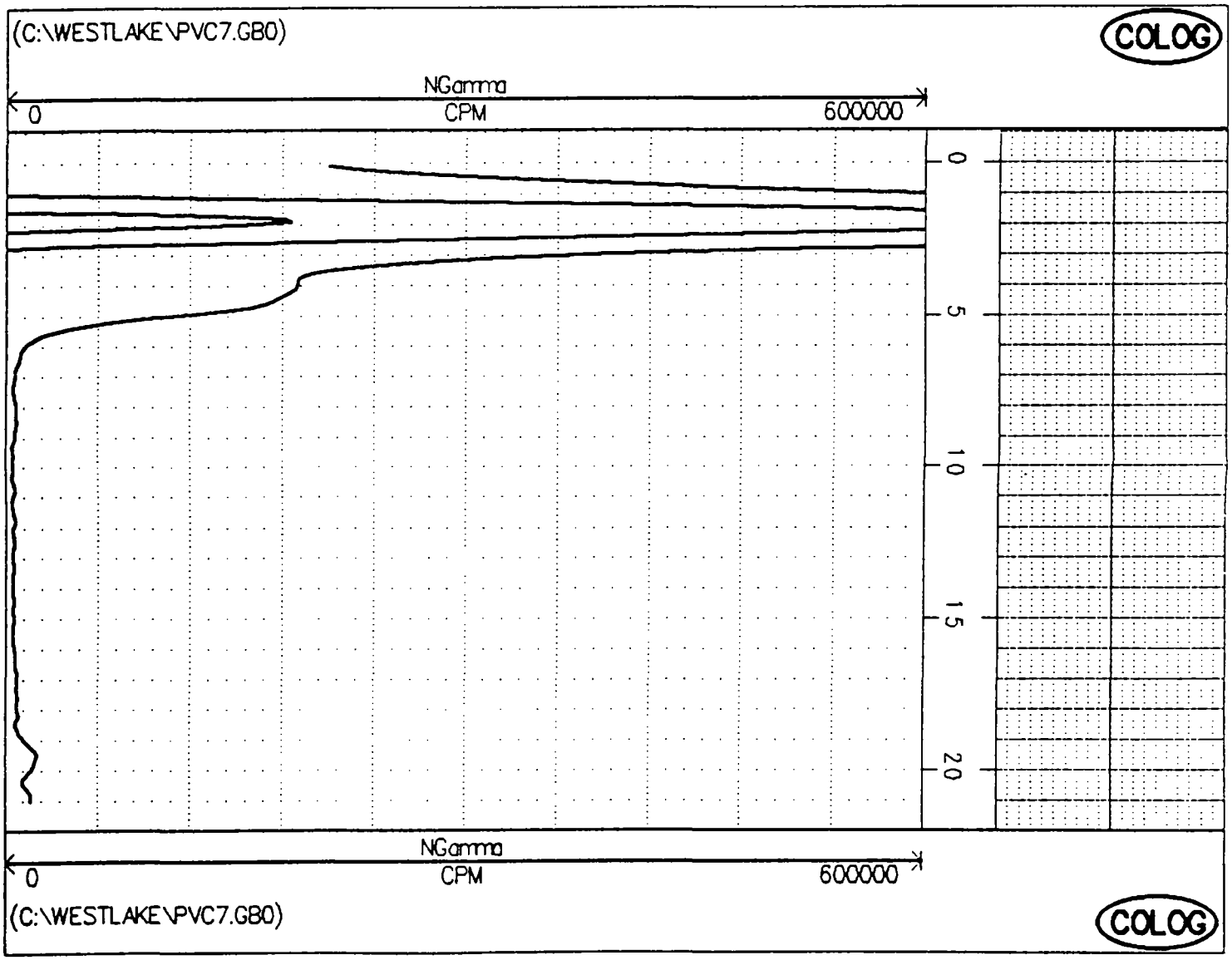
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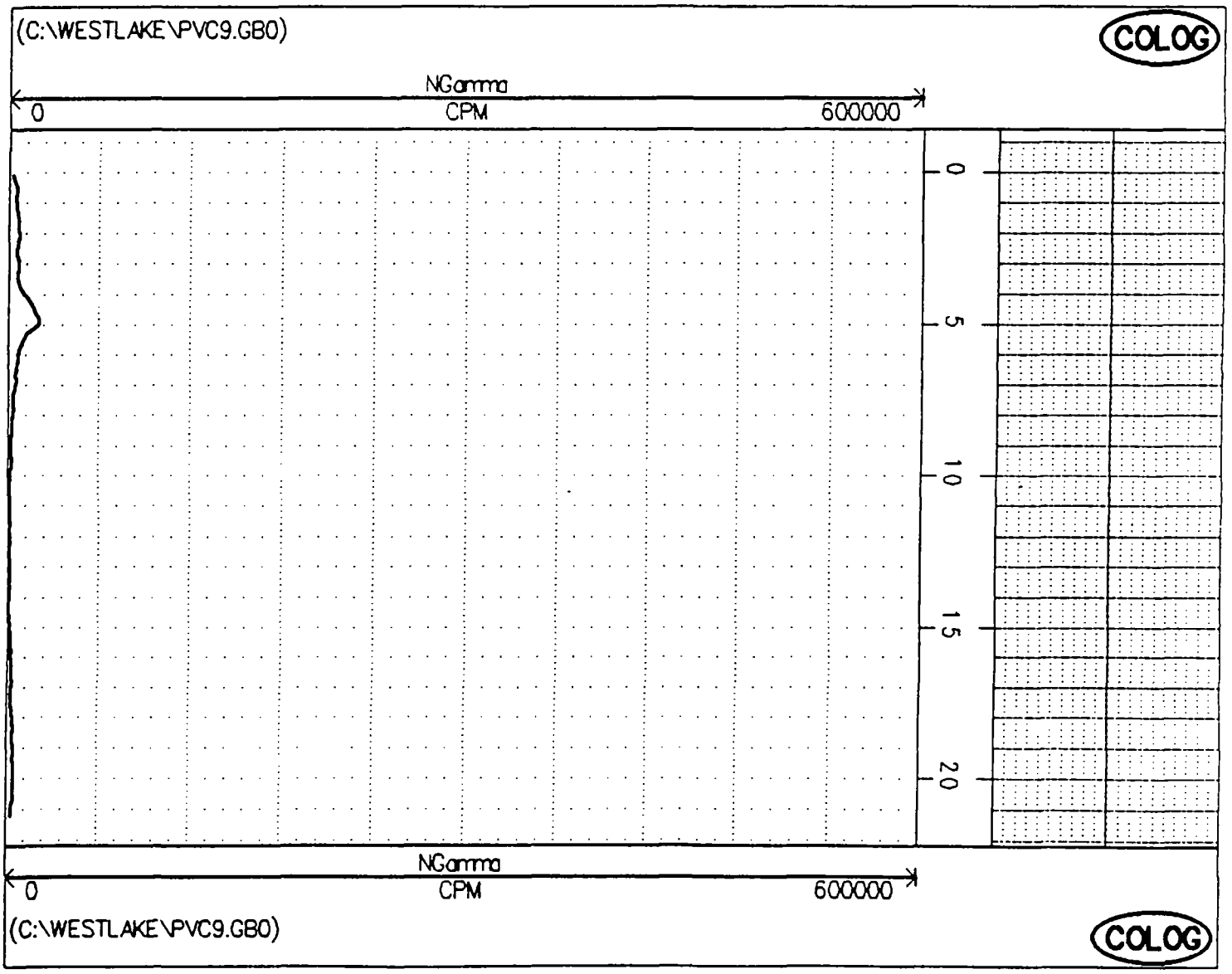
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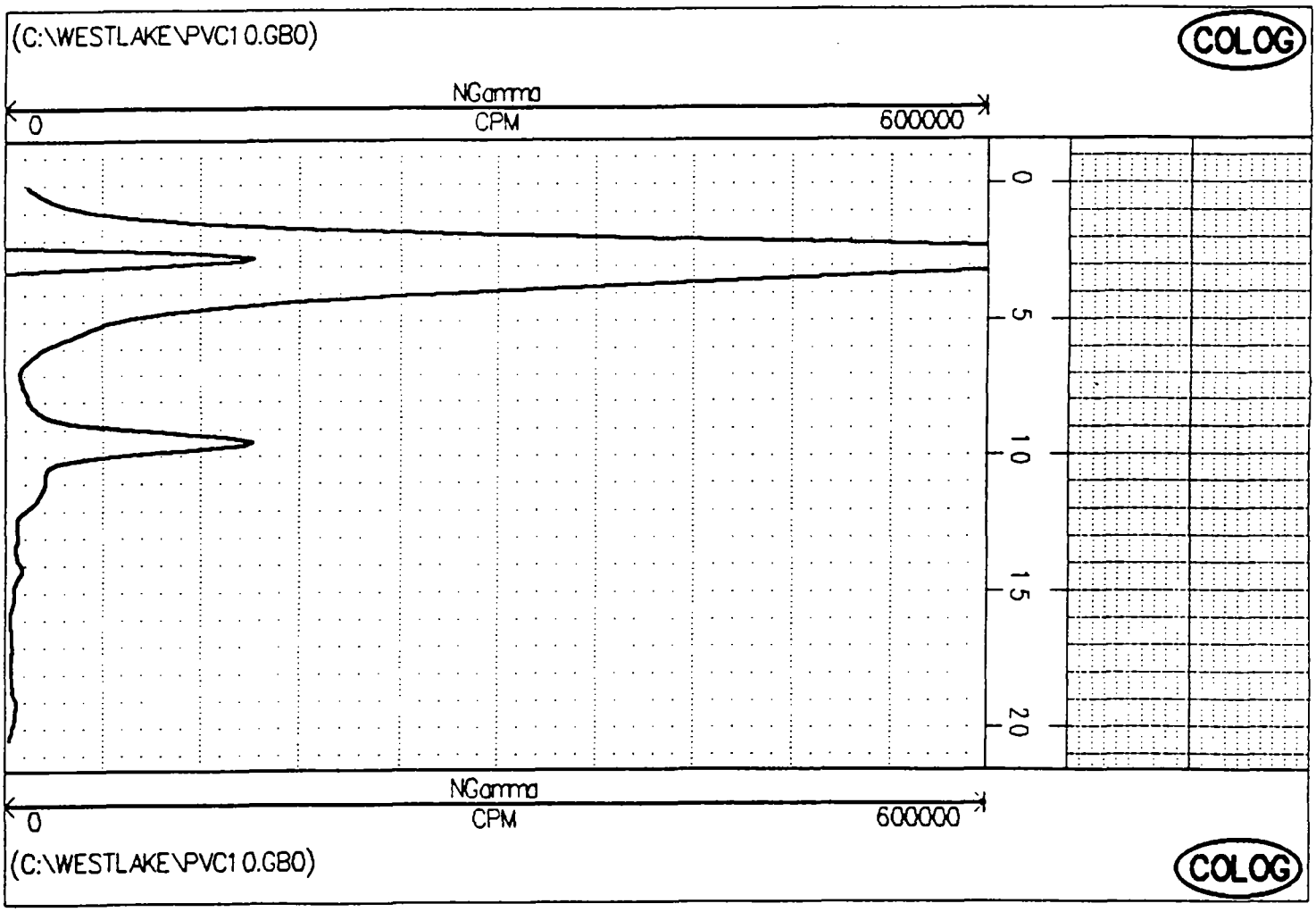
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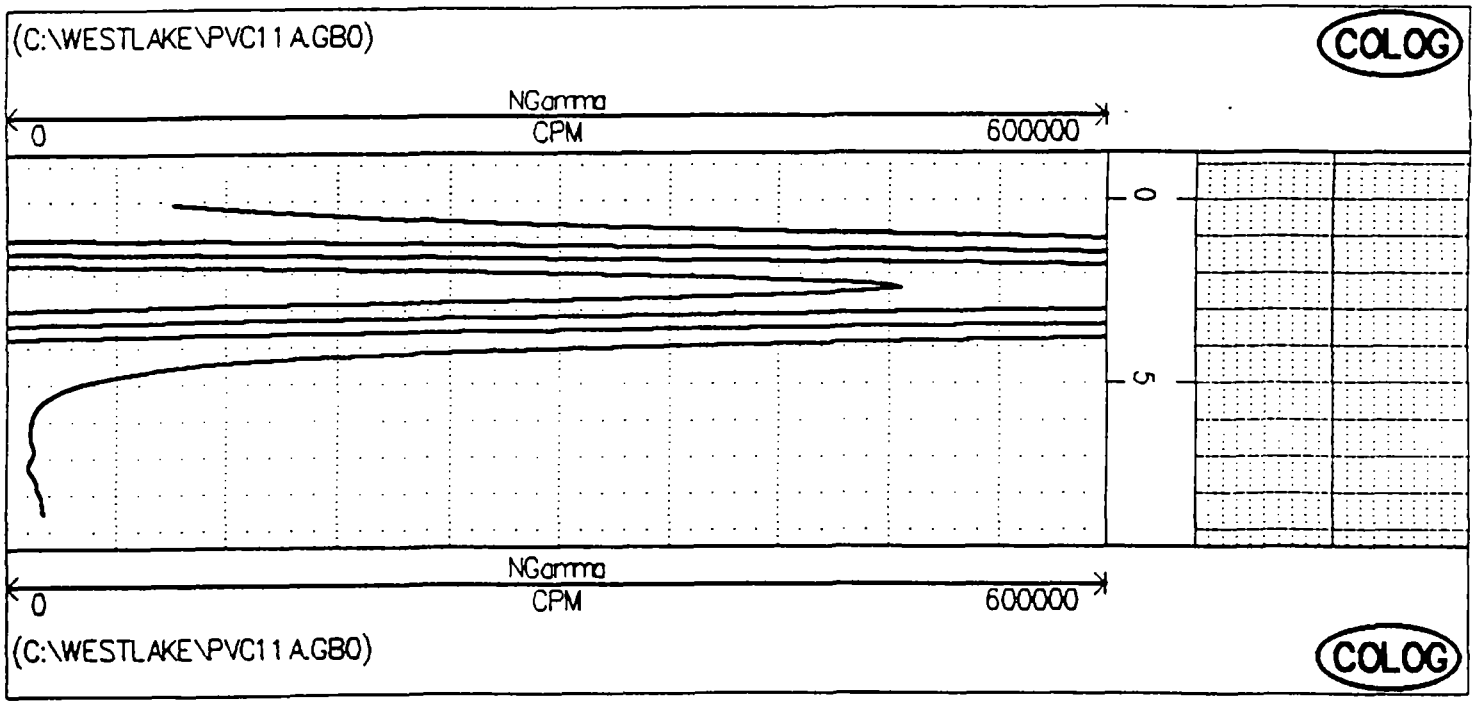
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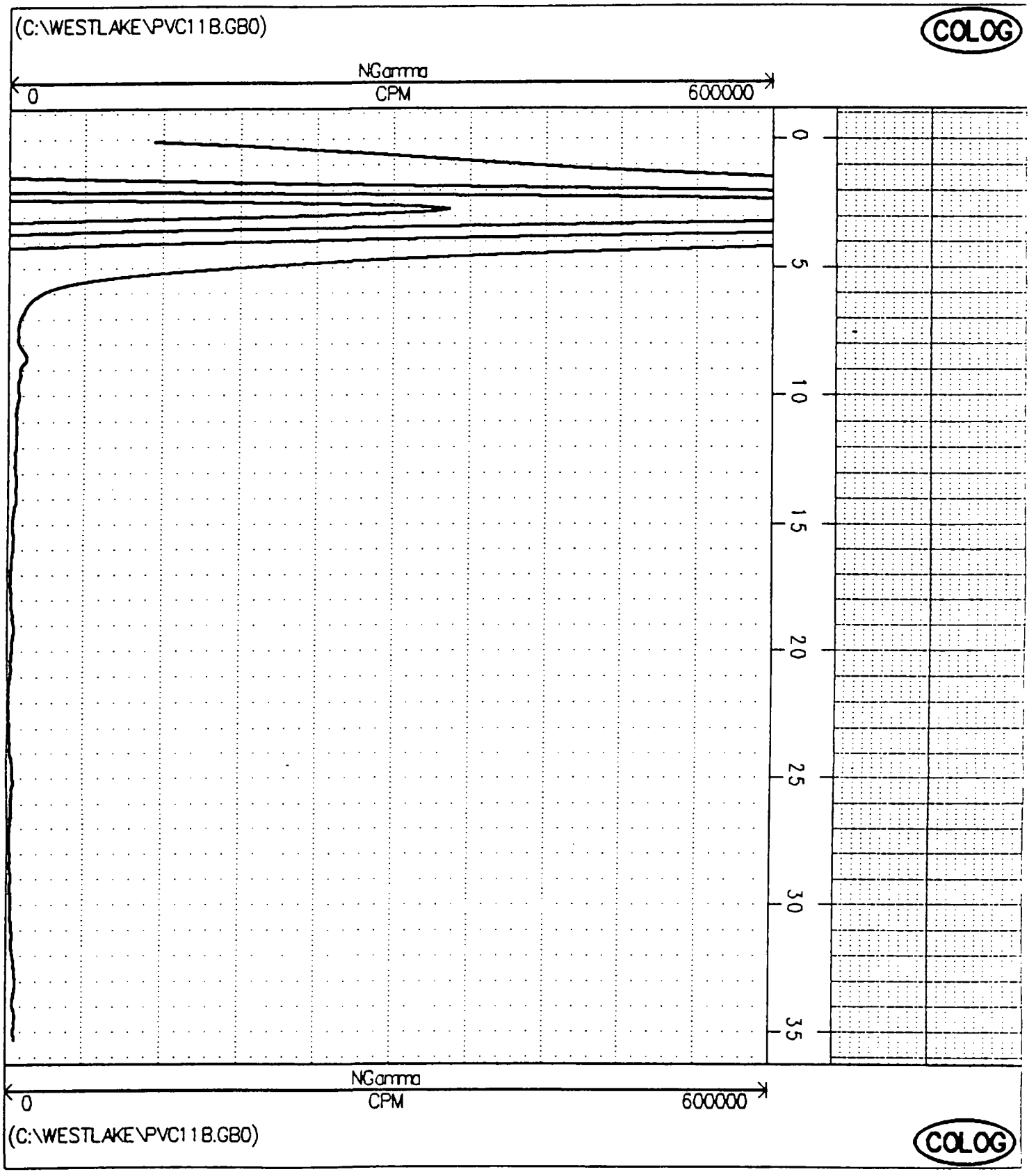
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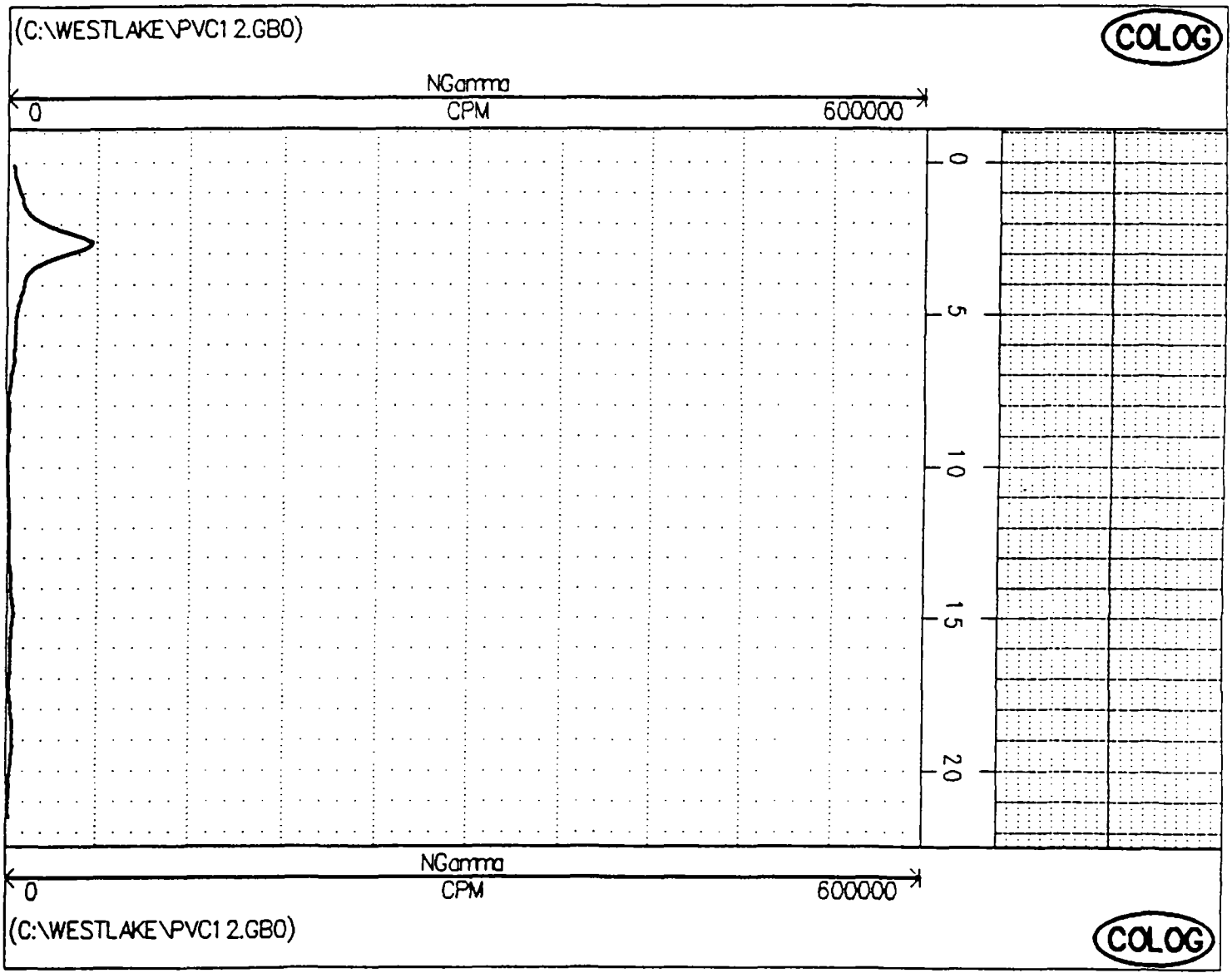
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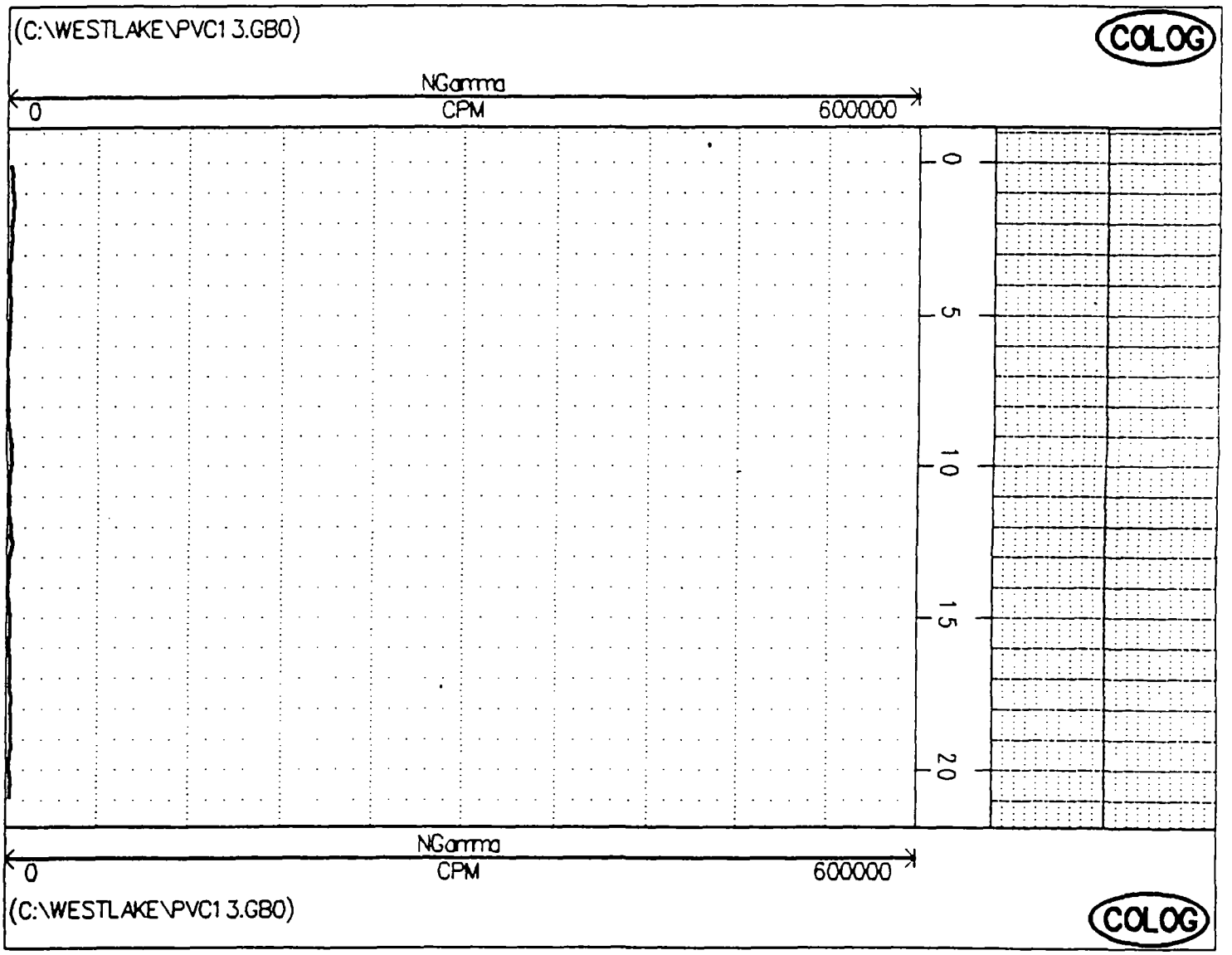
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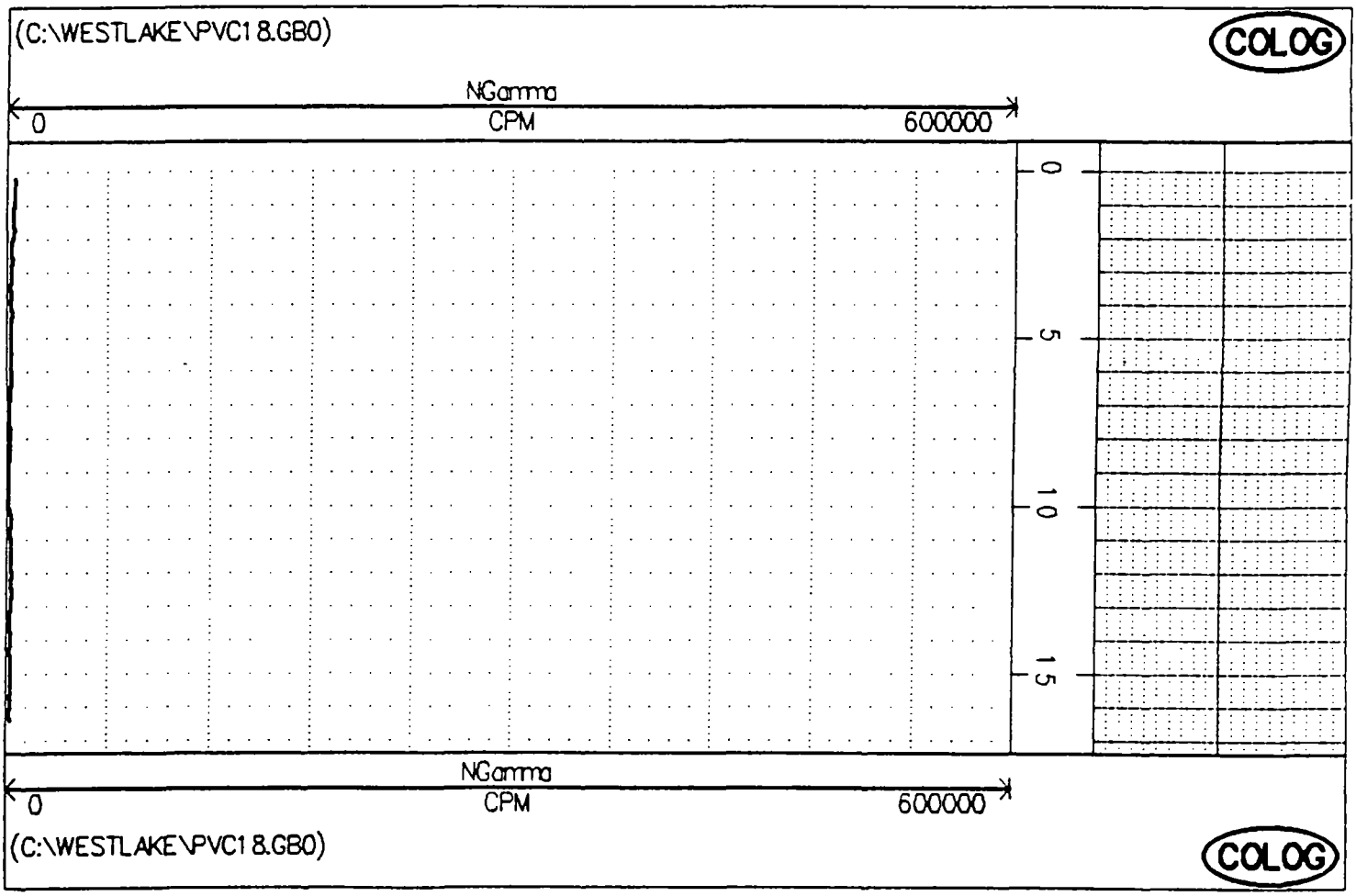
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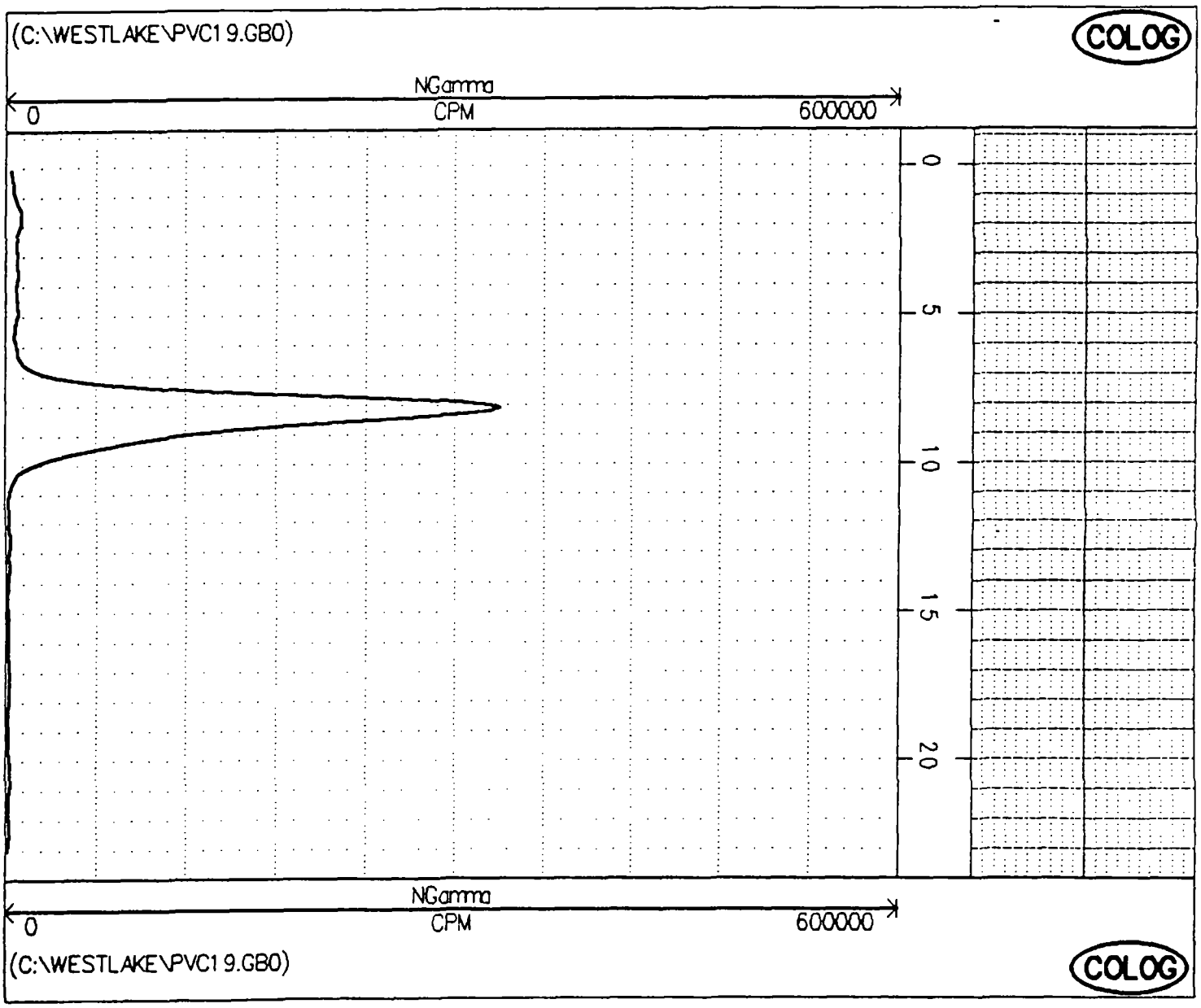
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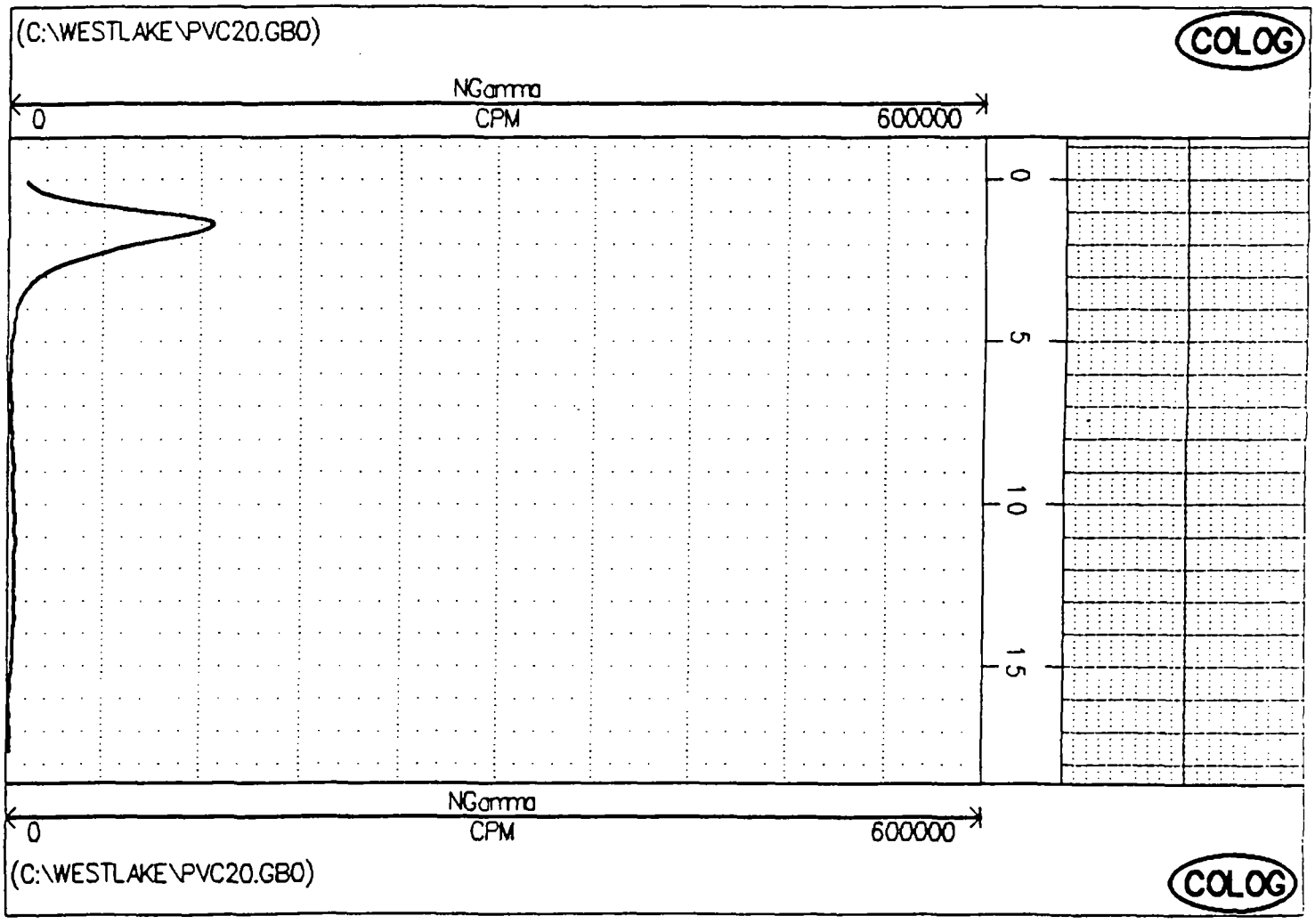
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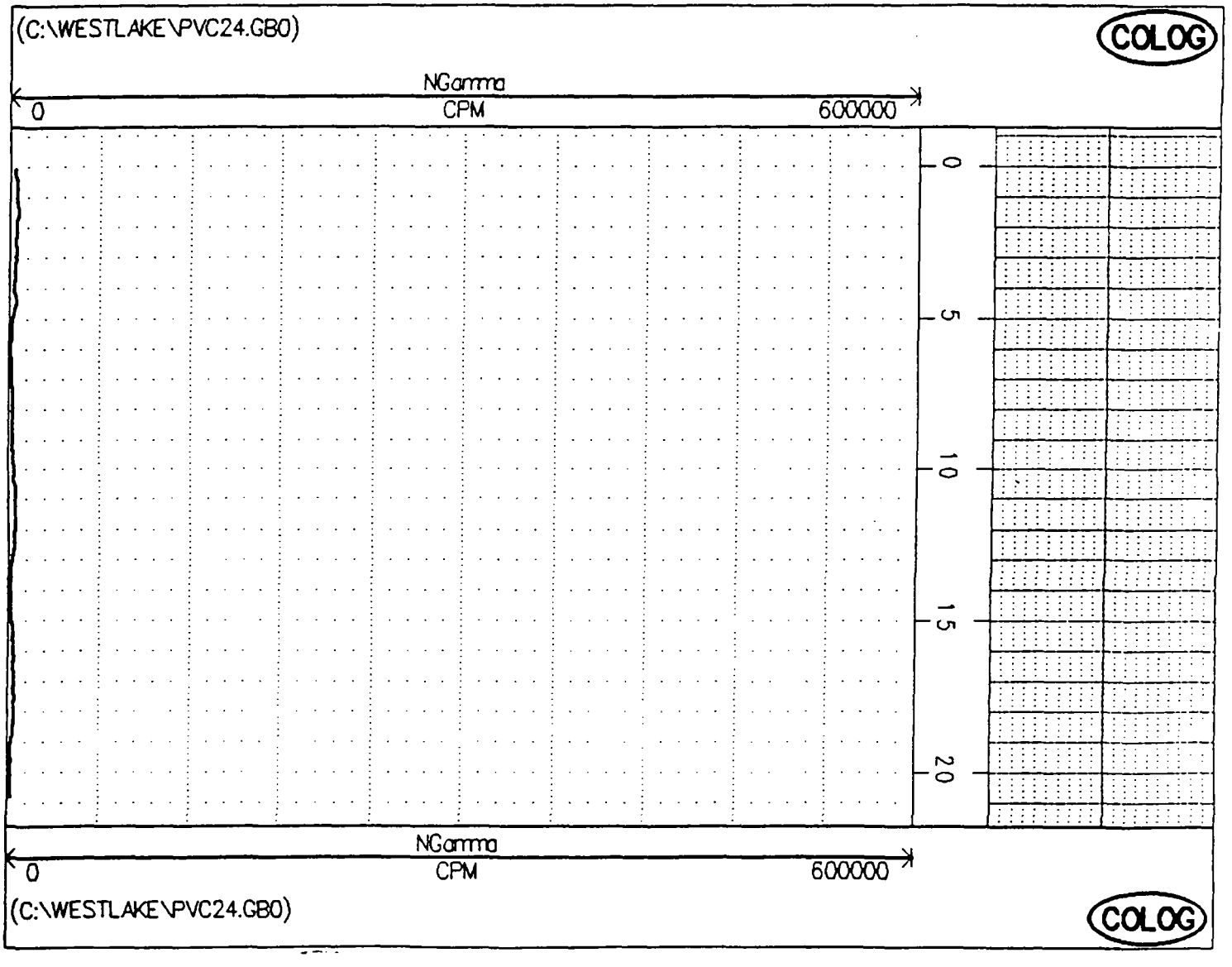
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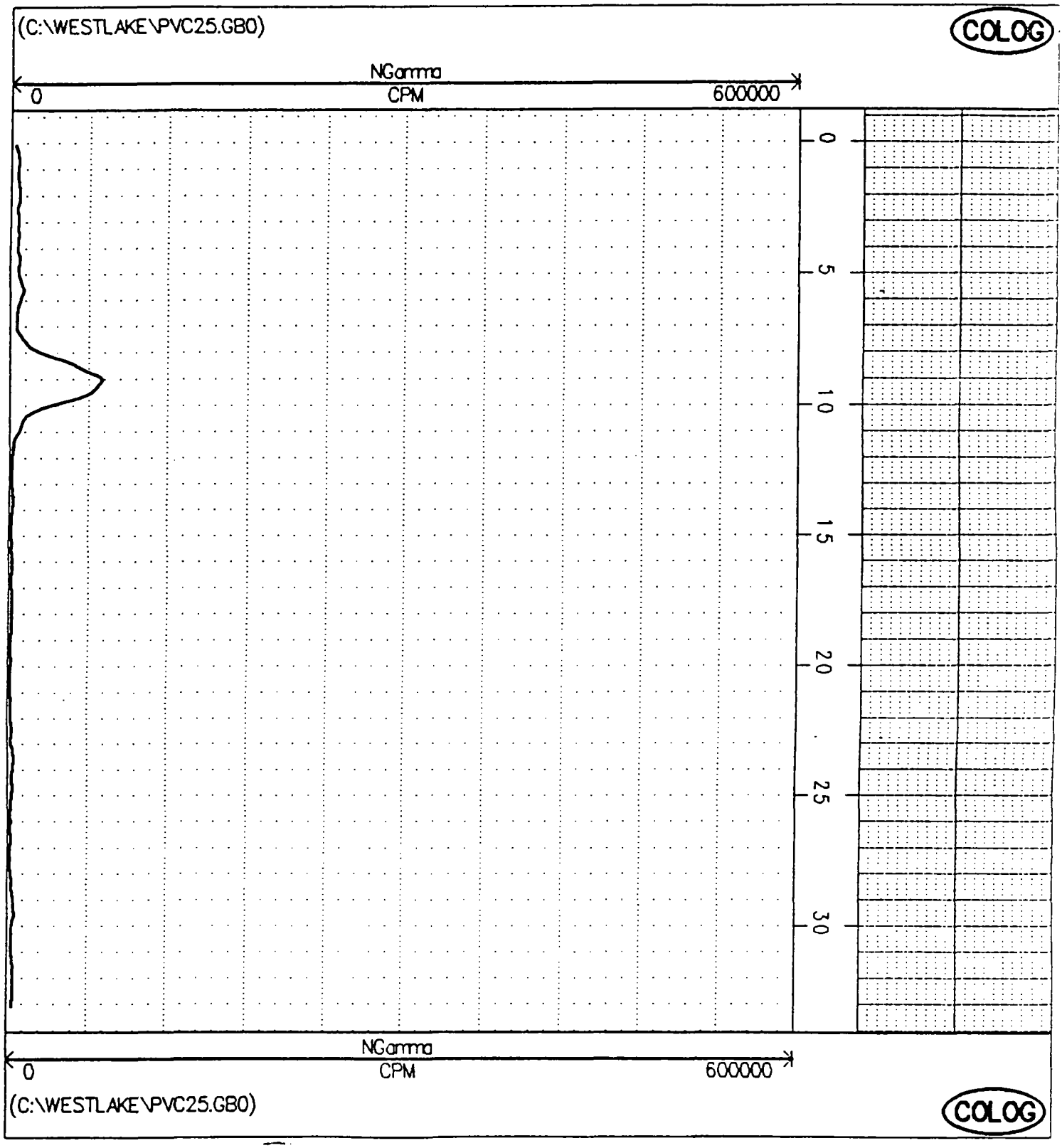
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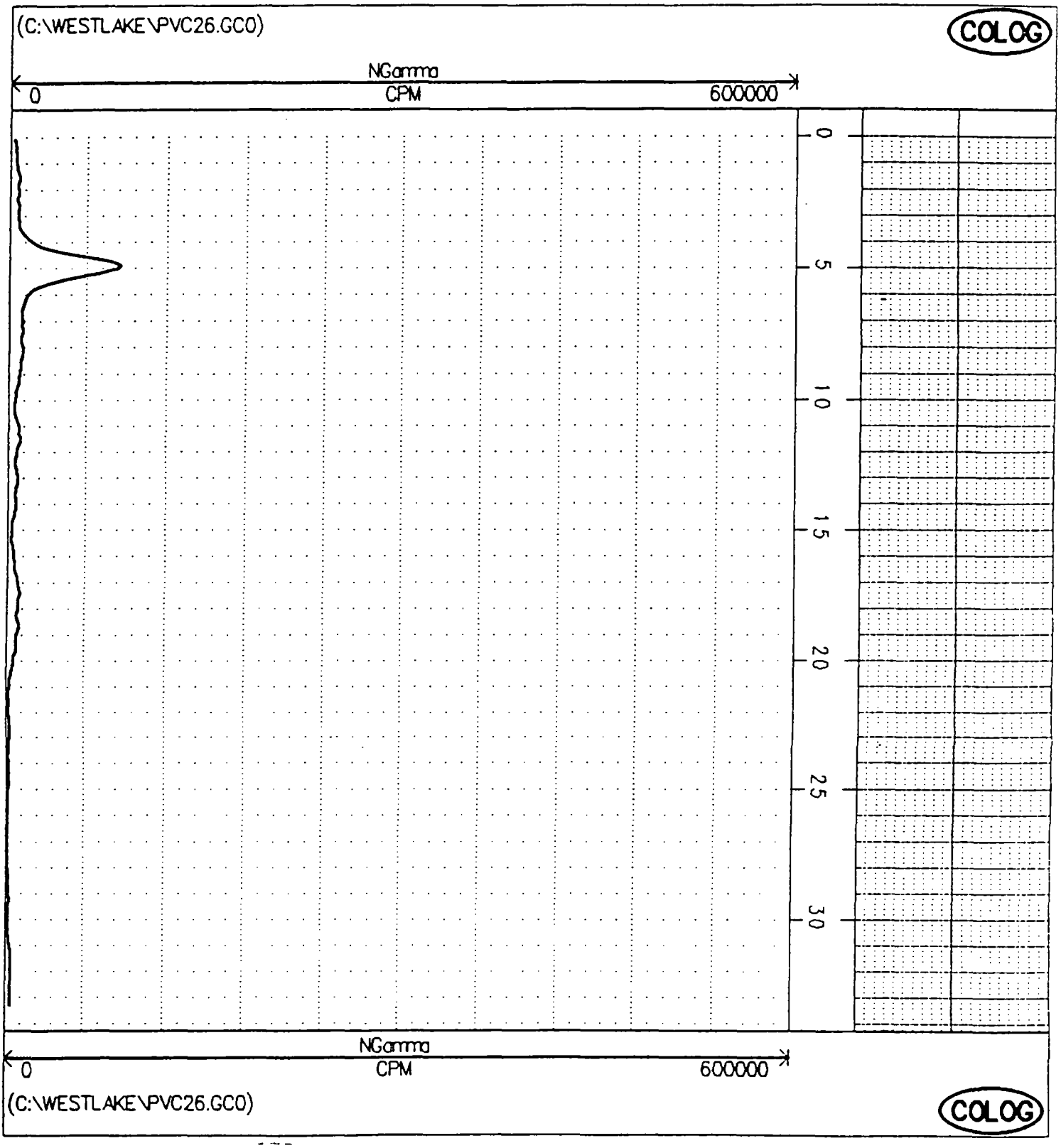
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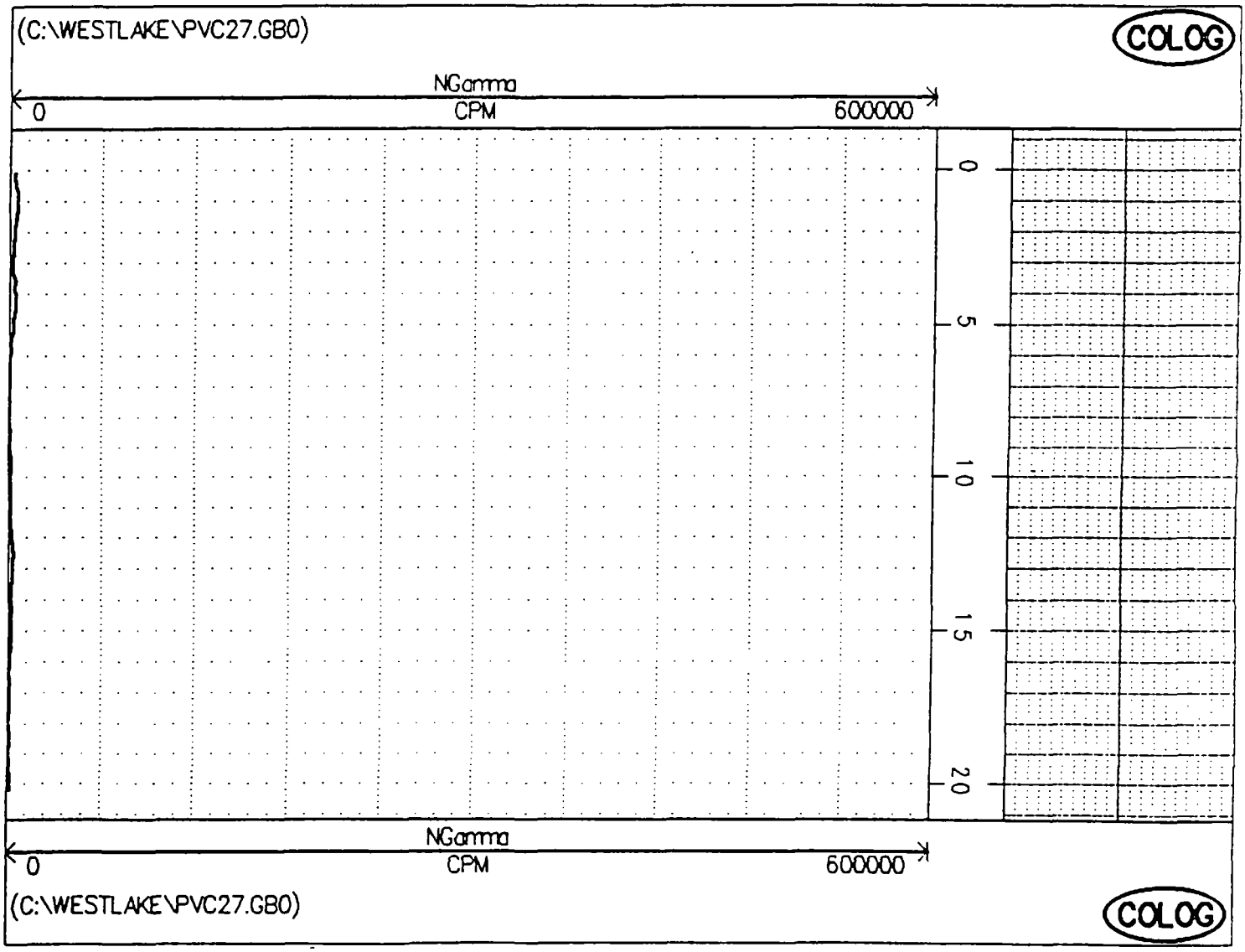
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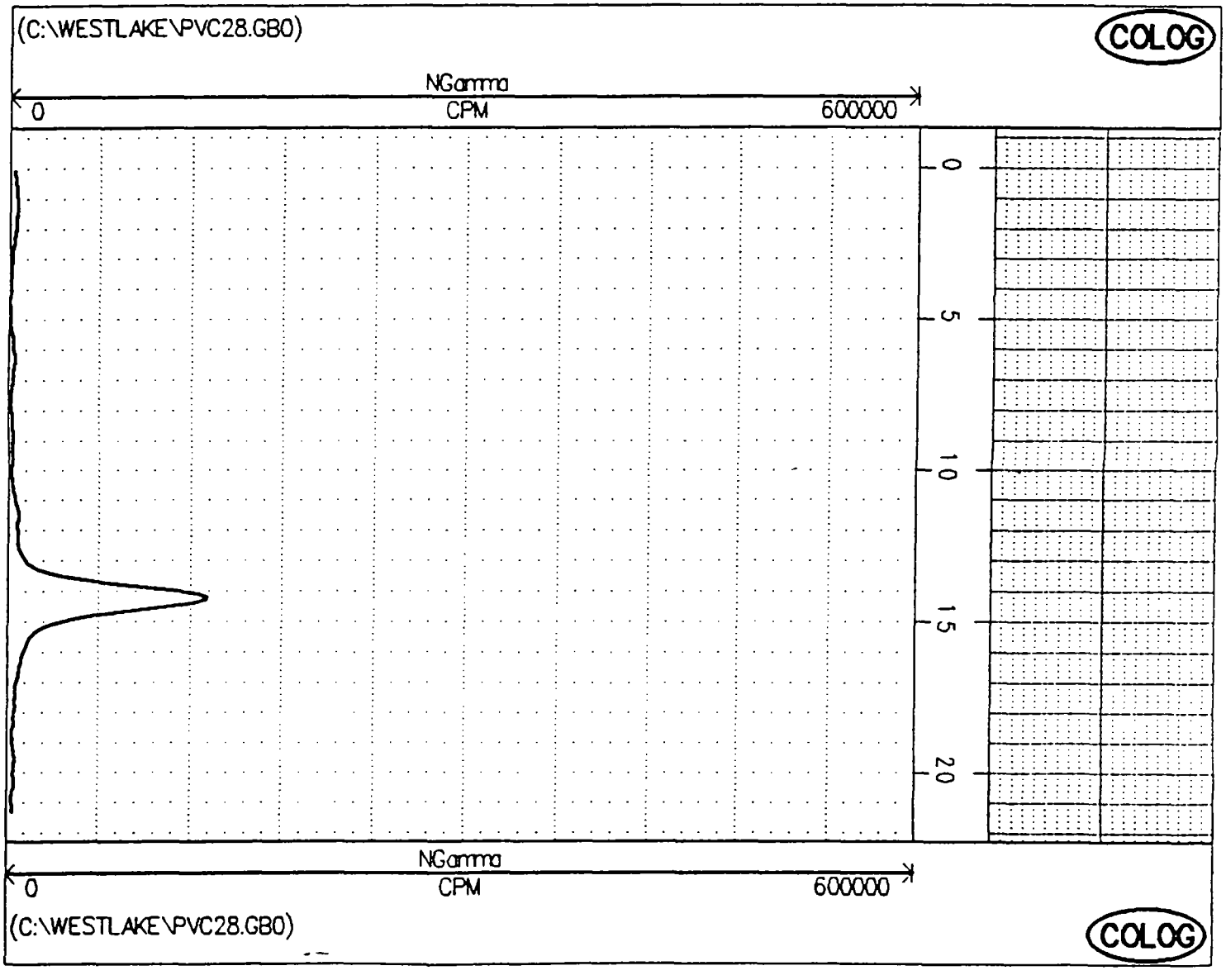
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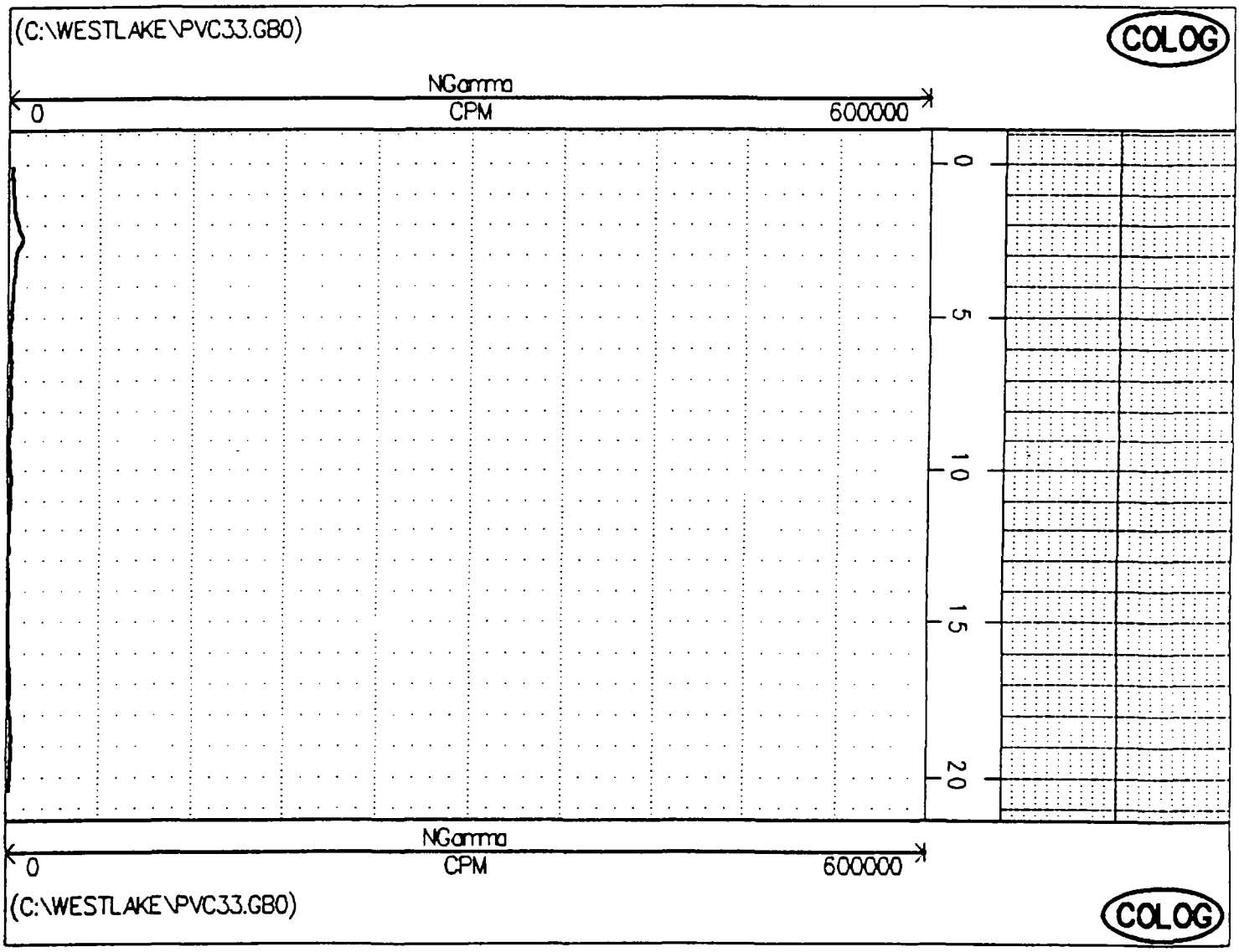
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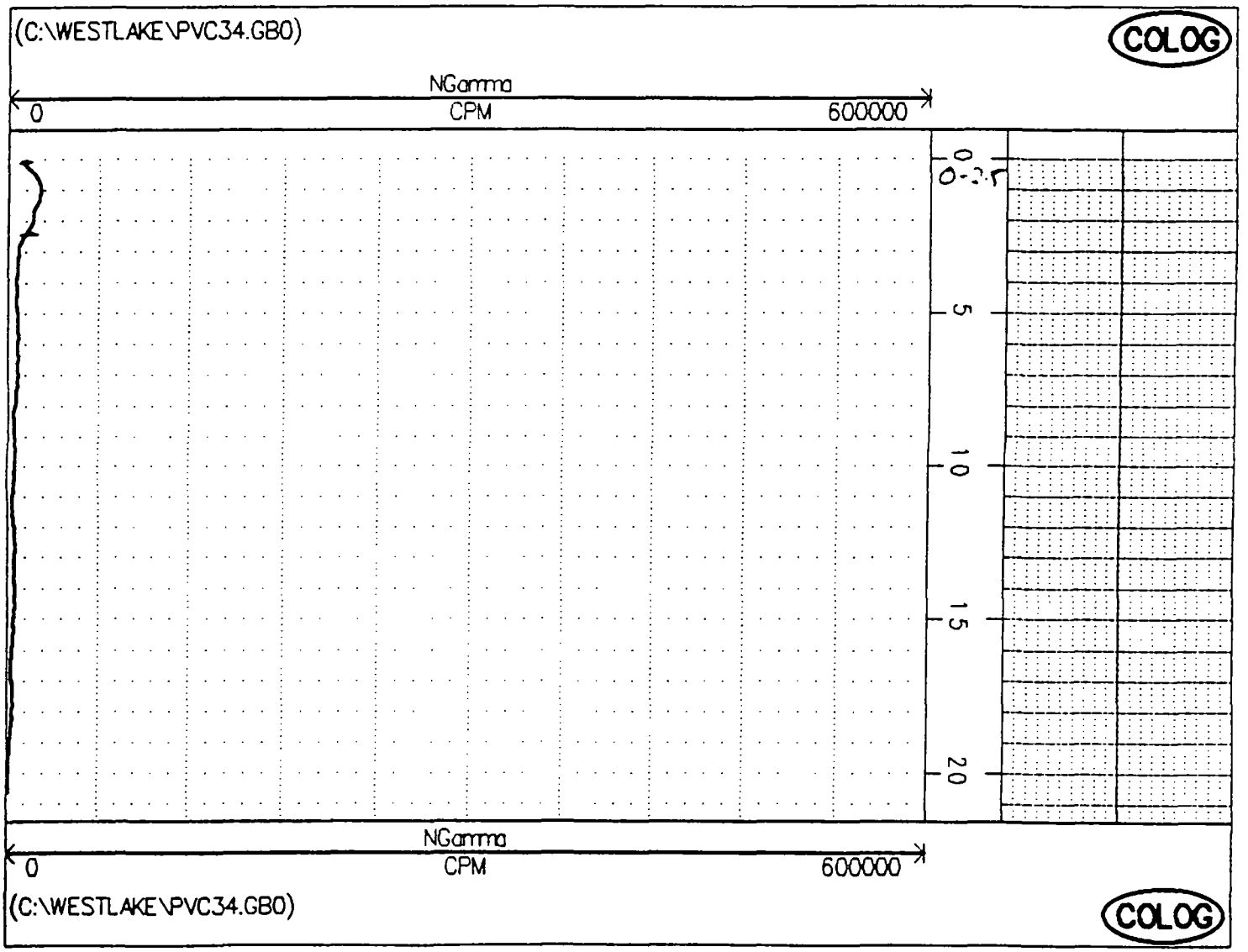
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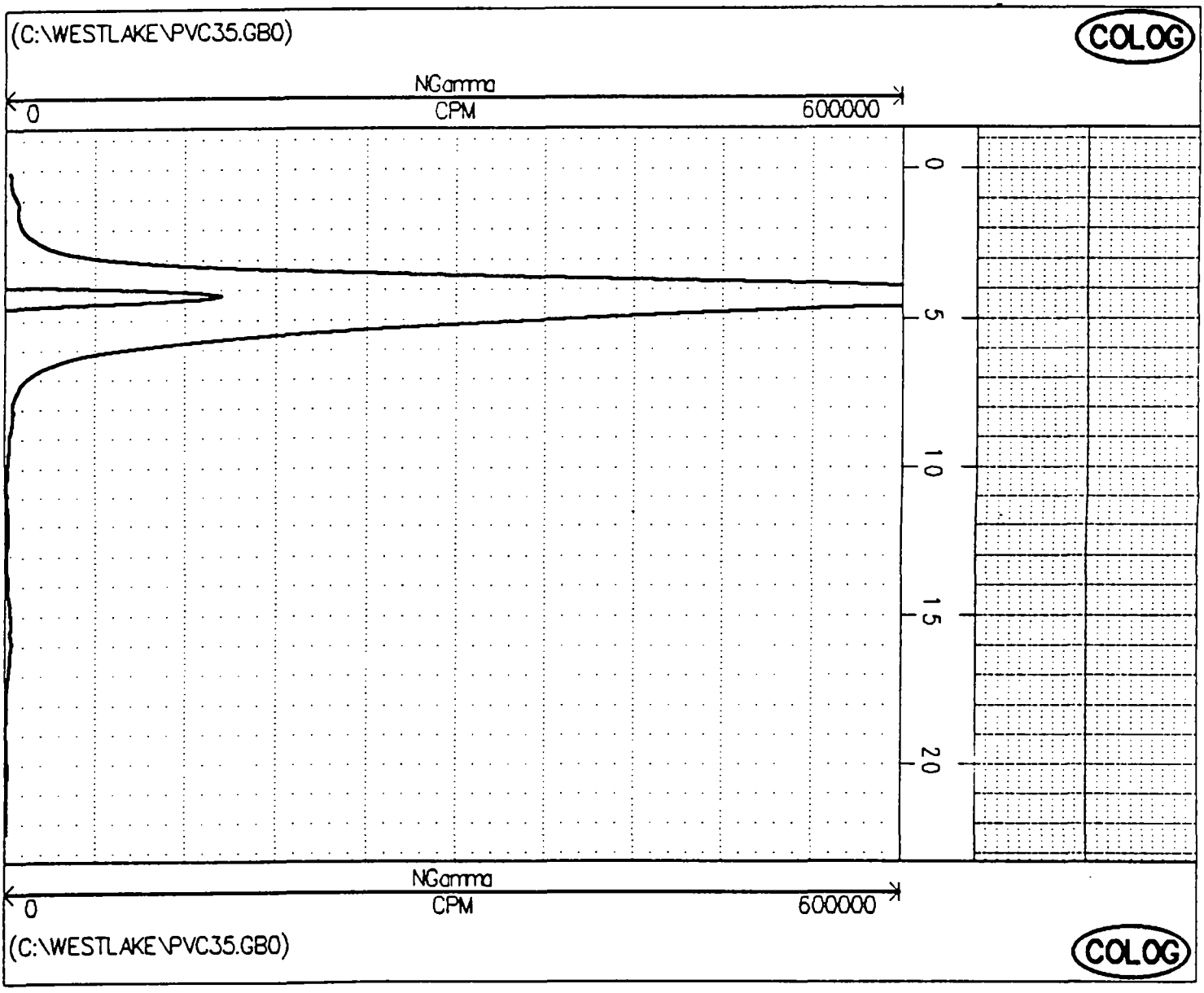
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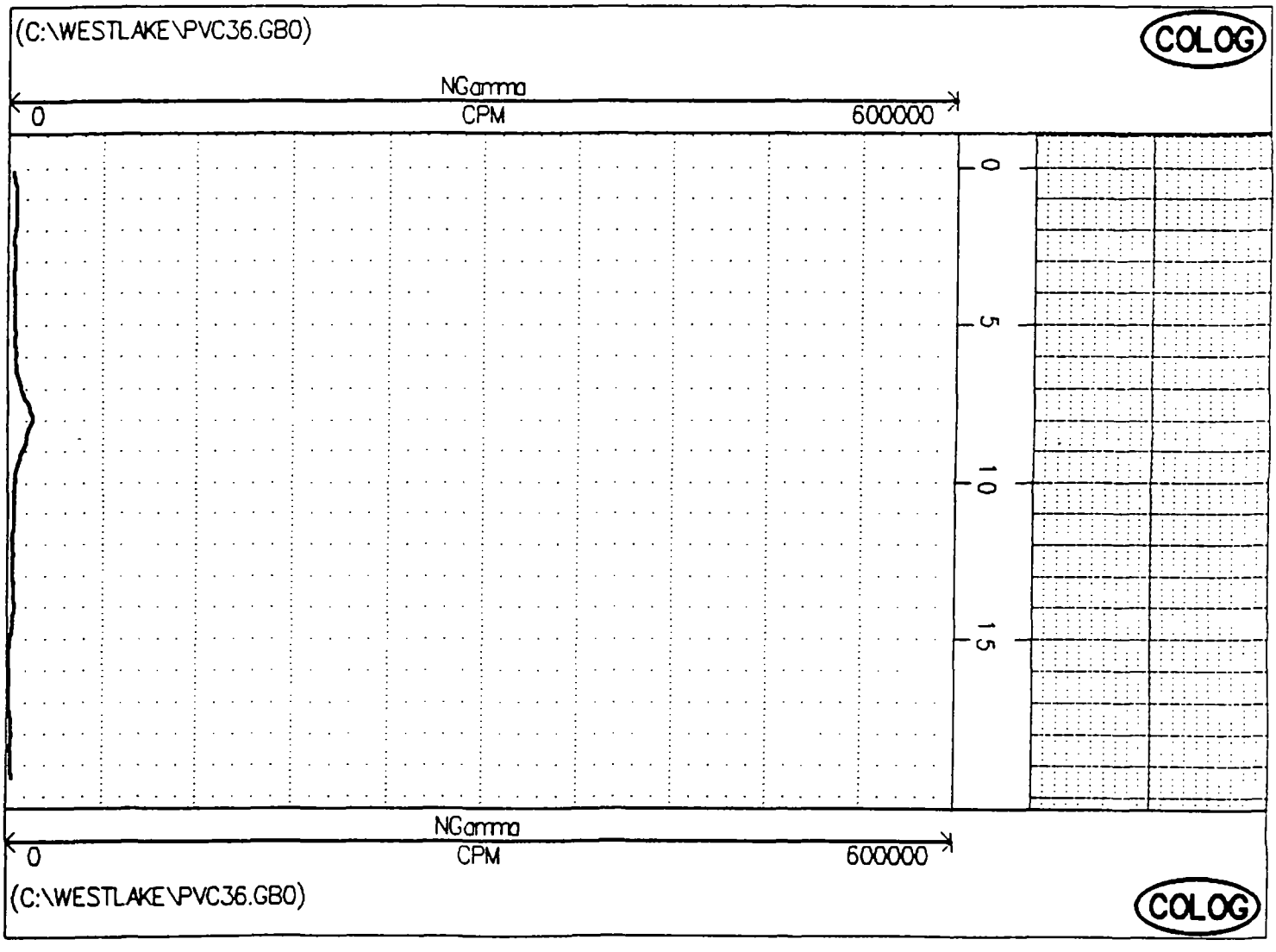
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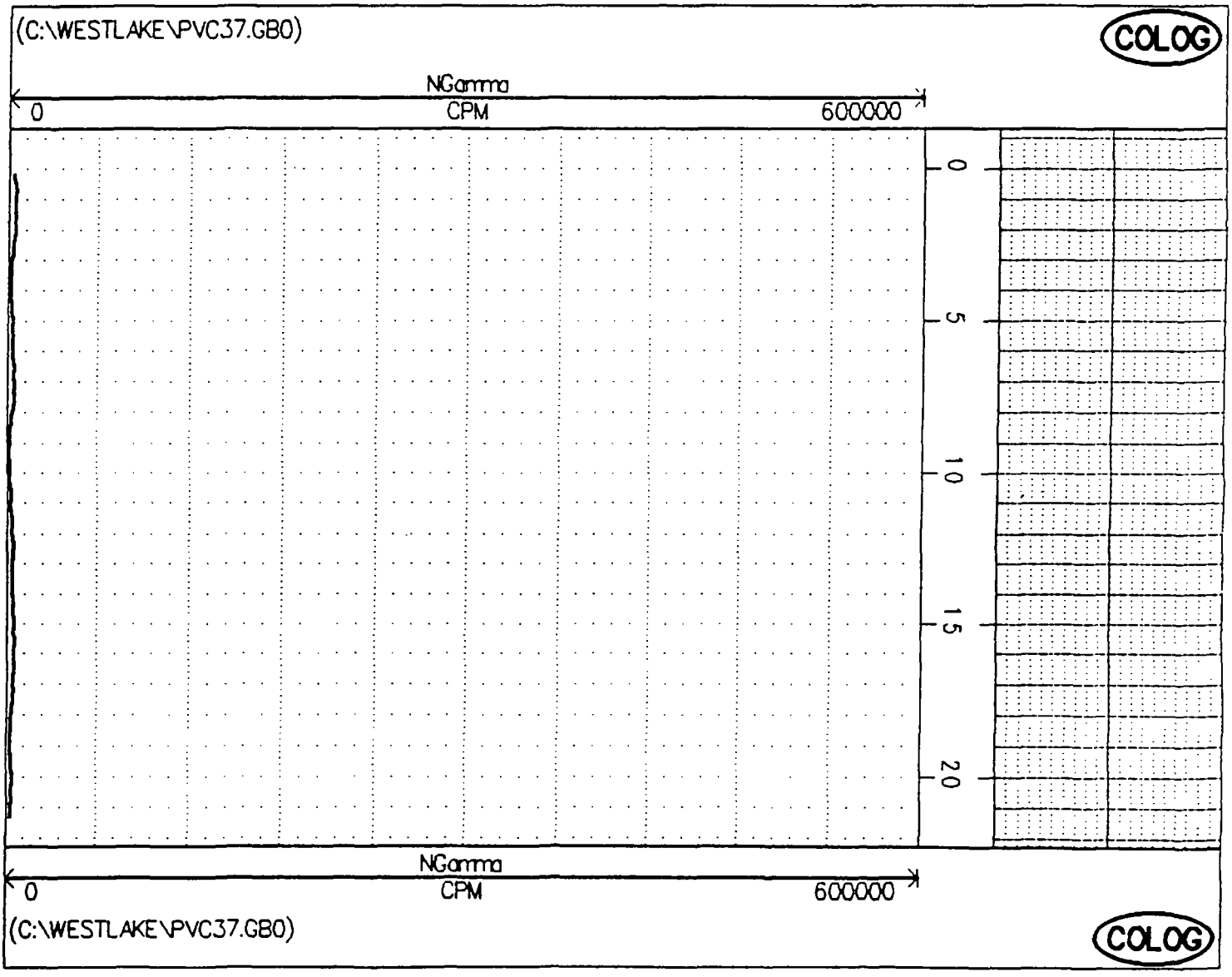
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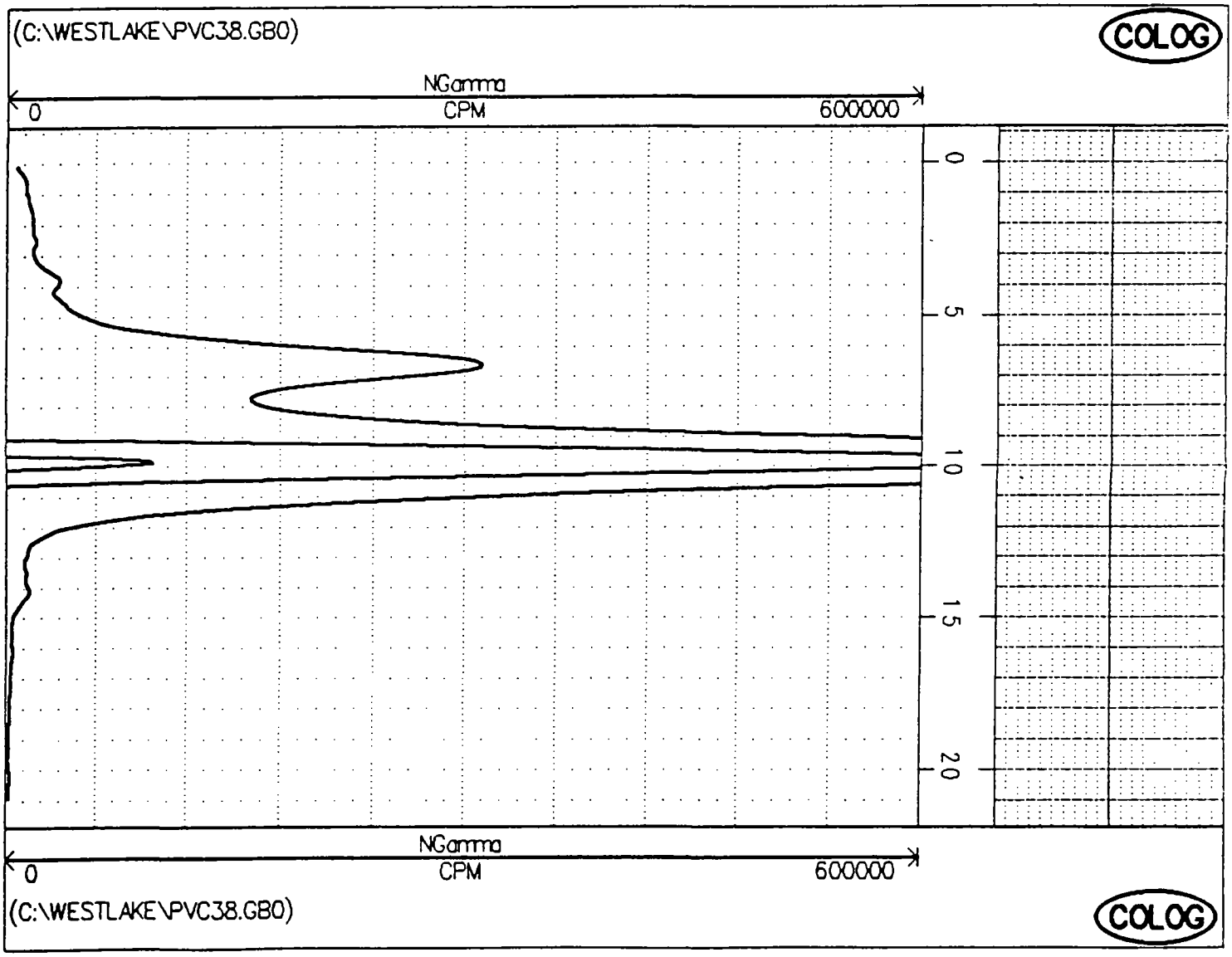
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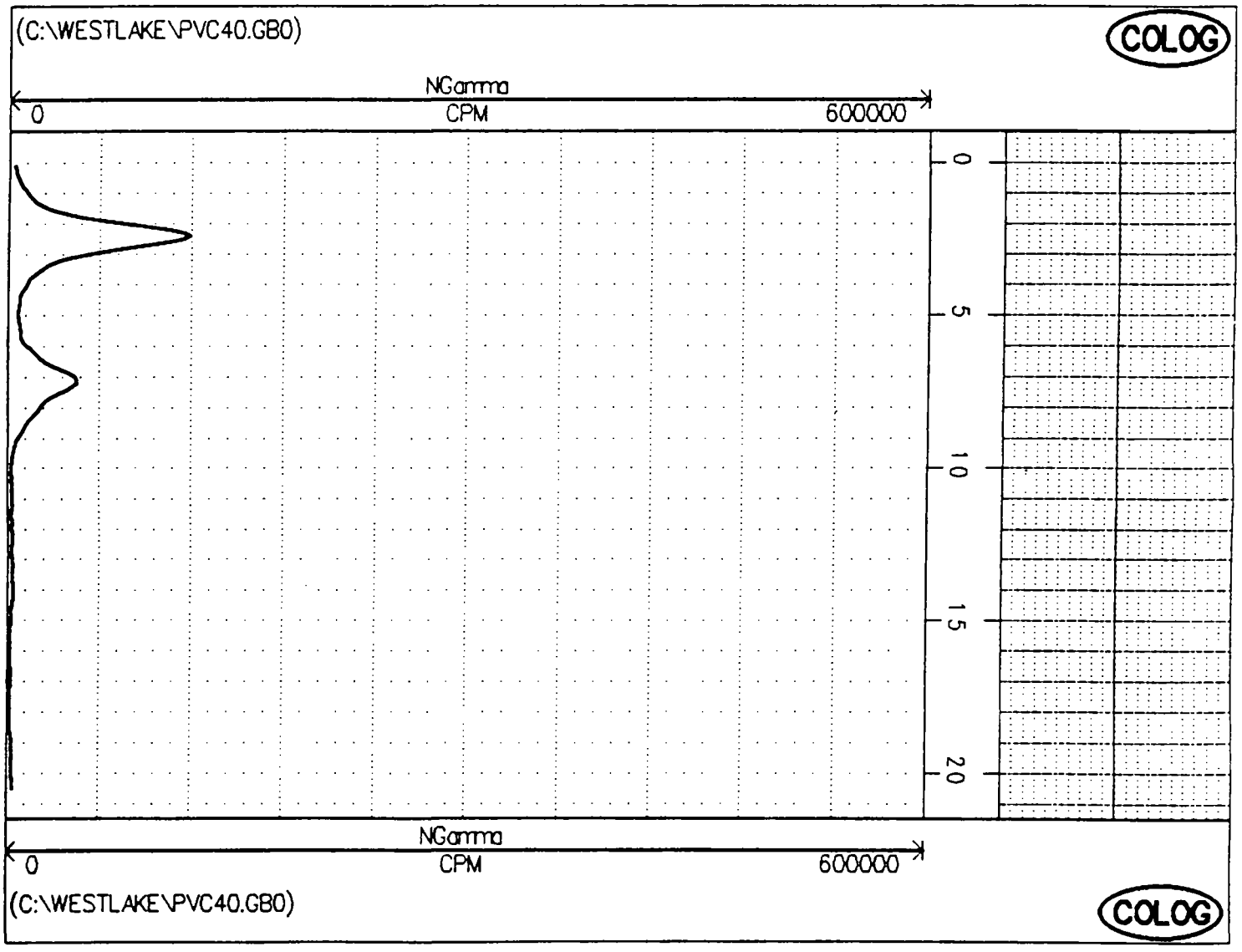
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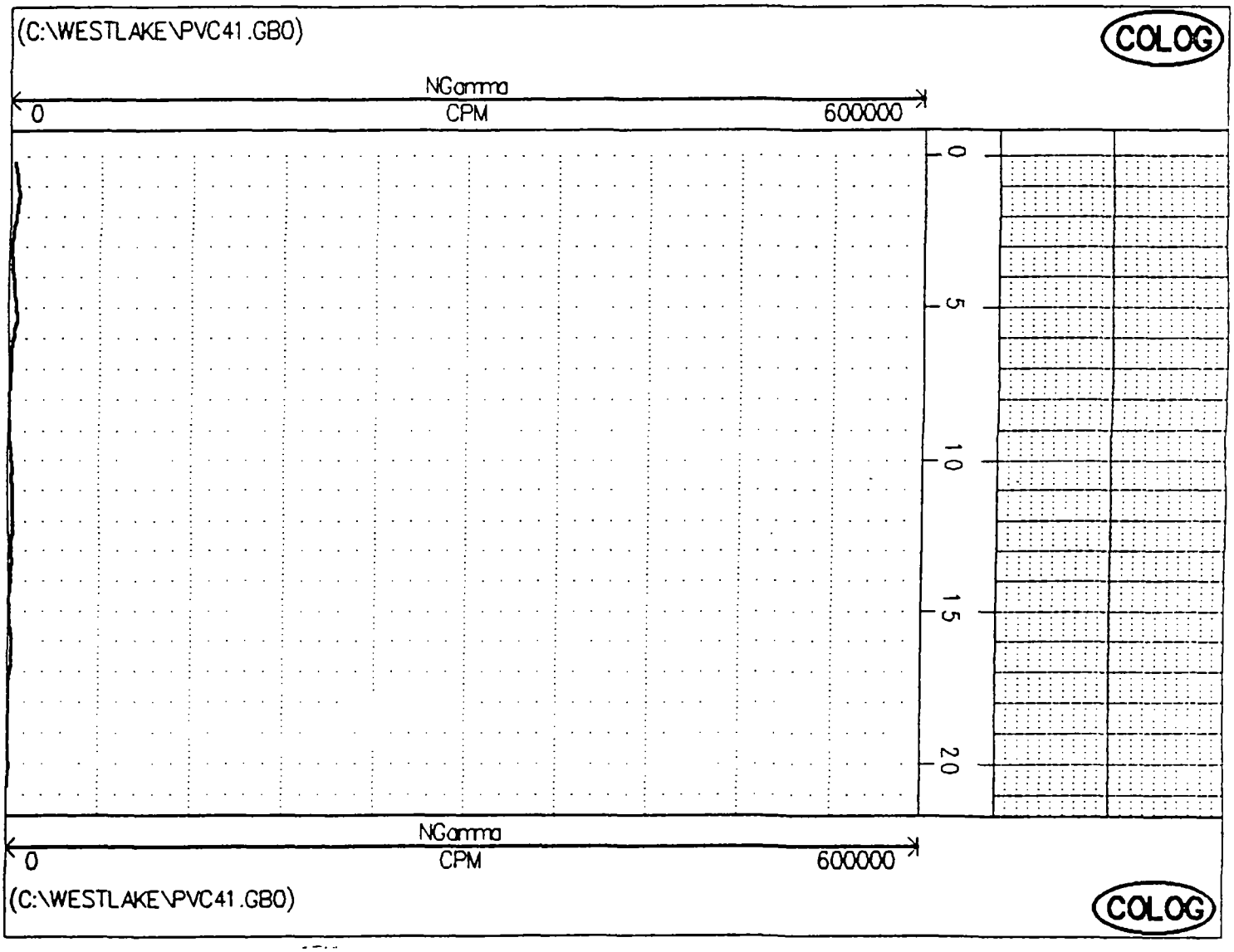
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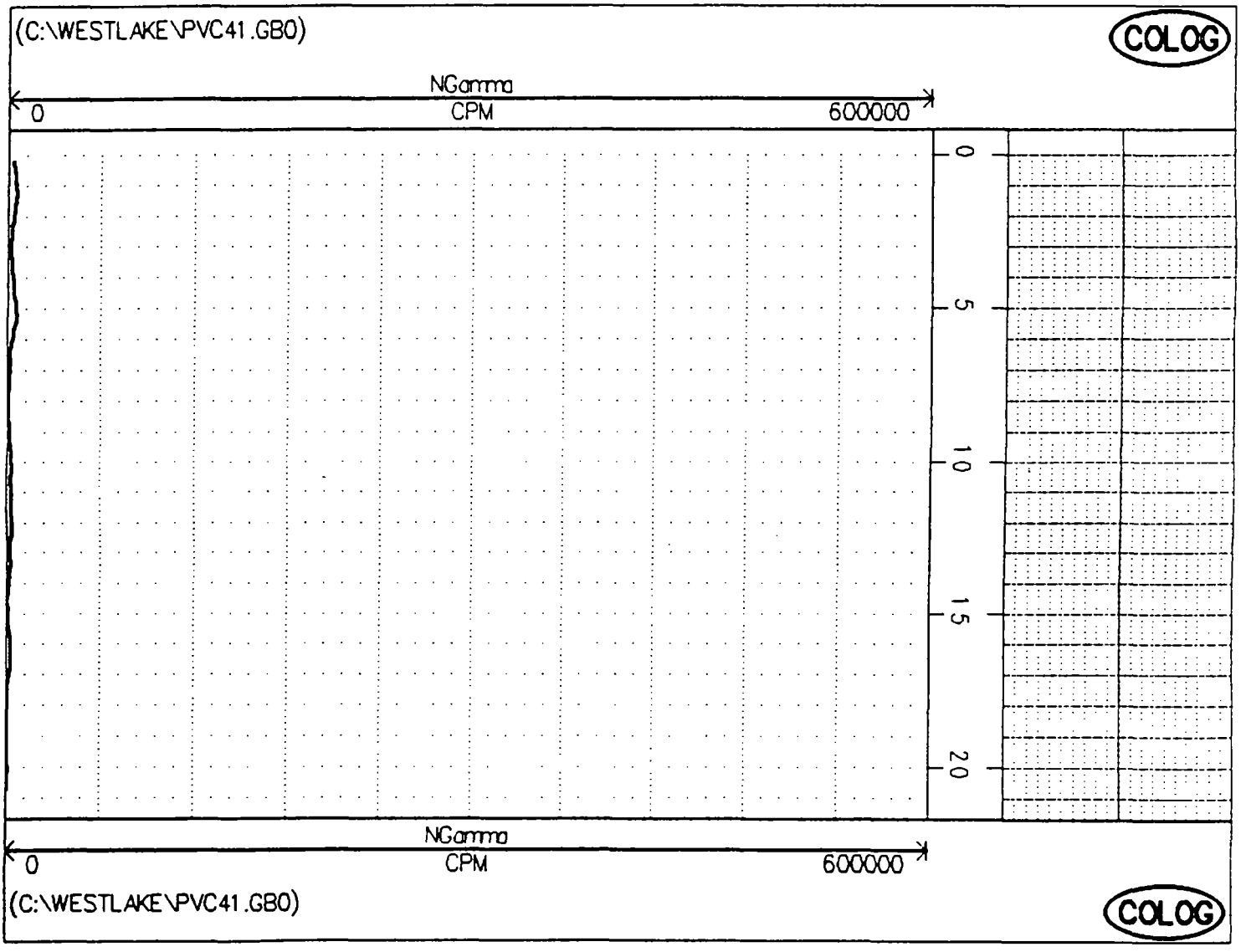
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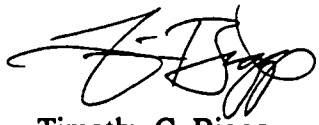
Prepared for:

The West Lake Respondent Group

Prepared by:

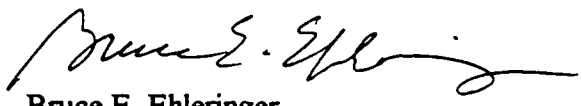
McLaren/Hart Environmental Engineering Corporation
1000 Town Center, Suite 600
Southfield, Michigan 48075

Prepared by:



Timothy C. Biggs
Senior Associate Geoscientist

Reviewed by:



Bruce E. Ehleringer
Managing Principal Geoscientist

November 26, 1996

Project No. 070803035

GROUNDWATER CONDITIONS REPORT
WEST LAKE LANDFILL RADIOLOGICAL
AREAS 1 AND 2
BRIDGETON, MISSOURI

APPENDICES

Appendix A	Groundwater Analytical Results
Appendix B	Groundwater Priority Pollutant Analytical Results
Appendix C	QA/QC Analytical Reports
Appendix D	Boring Logs and Well Construction Details
Appendix E	MSD Disposal Acceptance Letters
Appendix F	Quanterra Laboratory Procedural Issue Memo and Letter
Appendix G	Aquifer Testing Results

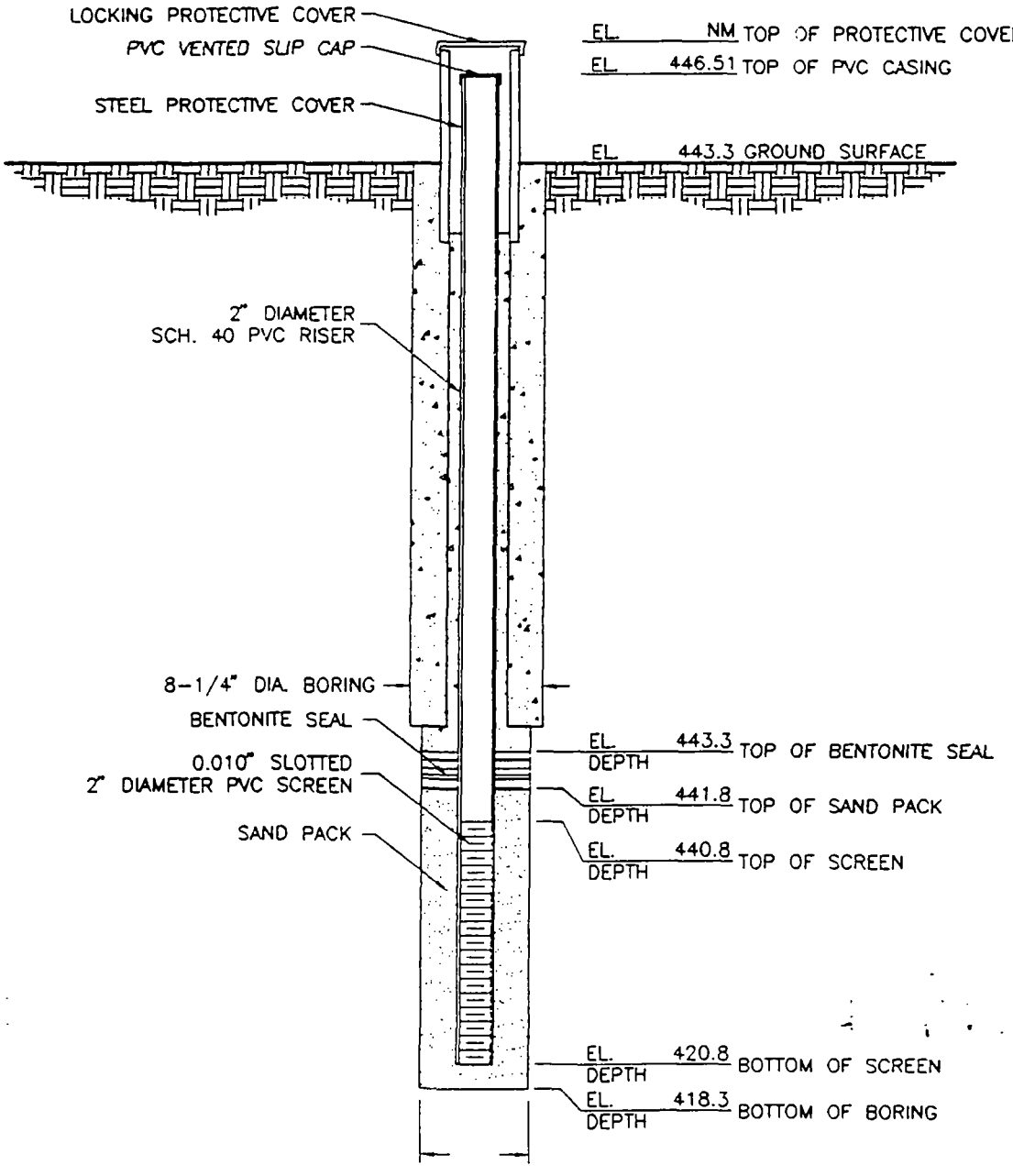
Boring Logs and Well Construction Details

McLaren Hart
ENVIRONMENTAL ENGINEERING CORPORATION

MONITORING WELL DETAILS

PROJECT NO. 070803035
WELL NO. S-1

PROJECT NAME WEST LAKE LANDFILL
WELL LOCATION BRIDGETON, MISSOURI DATE 8/2/95 BY HART ENVIRONMENTAL DRILLING



NOTES:
1. REFER TO SOIL BORING WL-204 FOR SOIL DESCRIPTION.
2. DETAIL NOT TO SCALE.
3. NM = NOT MEASURED

(W1.DWG)

McLaren Hart
ENVIRONMENTAL ENGINEERING CORPORATION

MONITORING WELL DETAILS

PROJECT NO. 070803035
WELL NO. I-2

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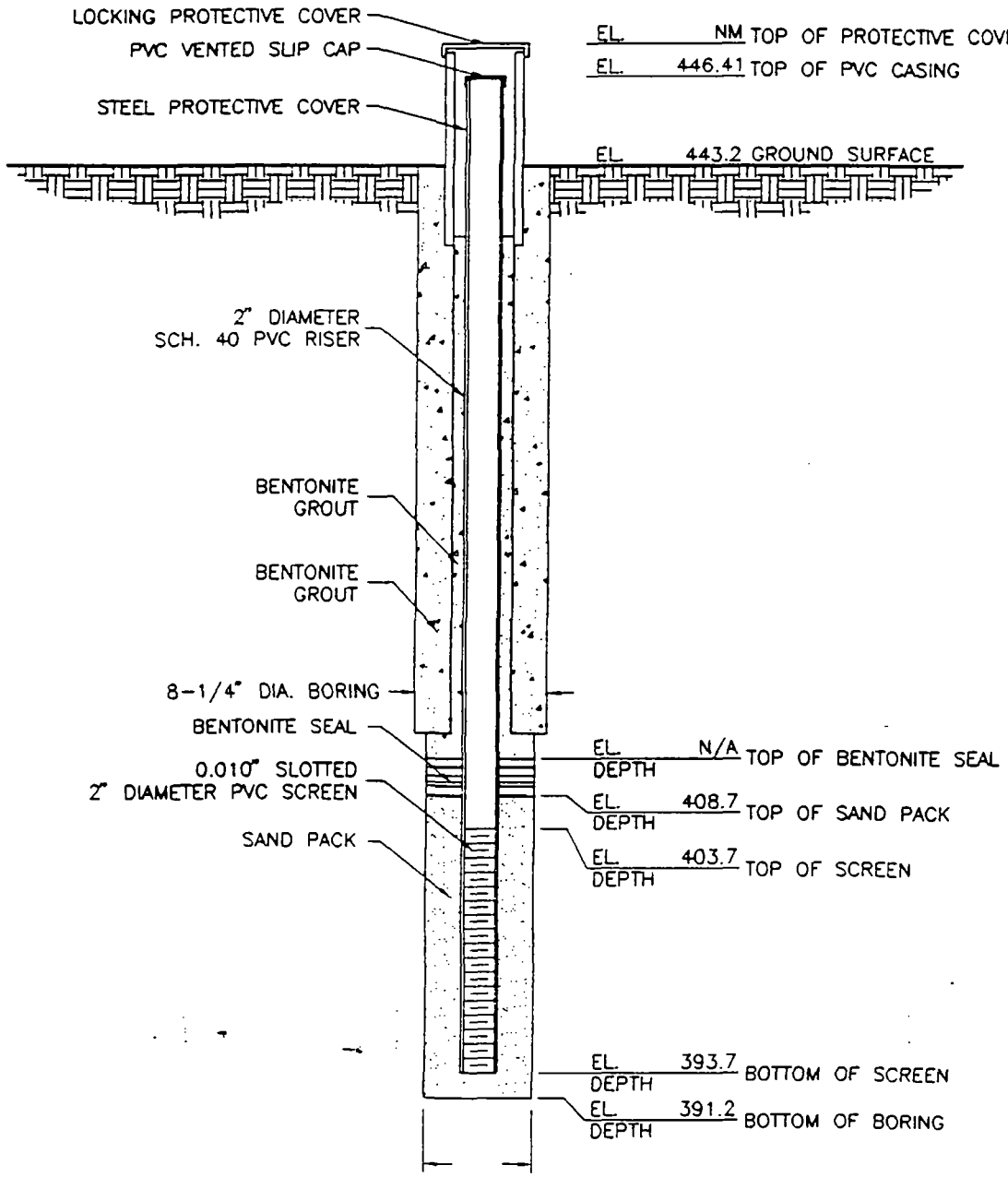


NOTES:

1. REFER TO SOIL BORING WL-205 FOR SOIL DESCRIPTION.
2. DETAIL NOT TO SCALE.
3. NM = NOT MEASURED
4. N/A NOT APPLICABLE. BENTONITE GROUT WAS USED TO SEAL WELL UP TO SURFACE.

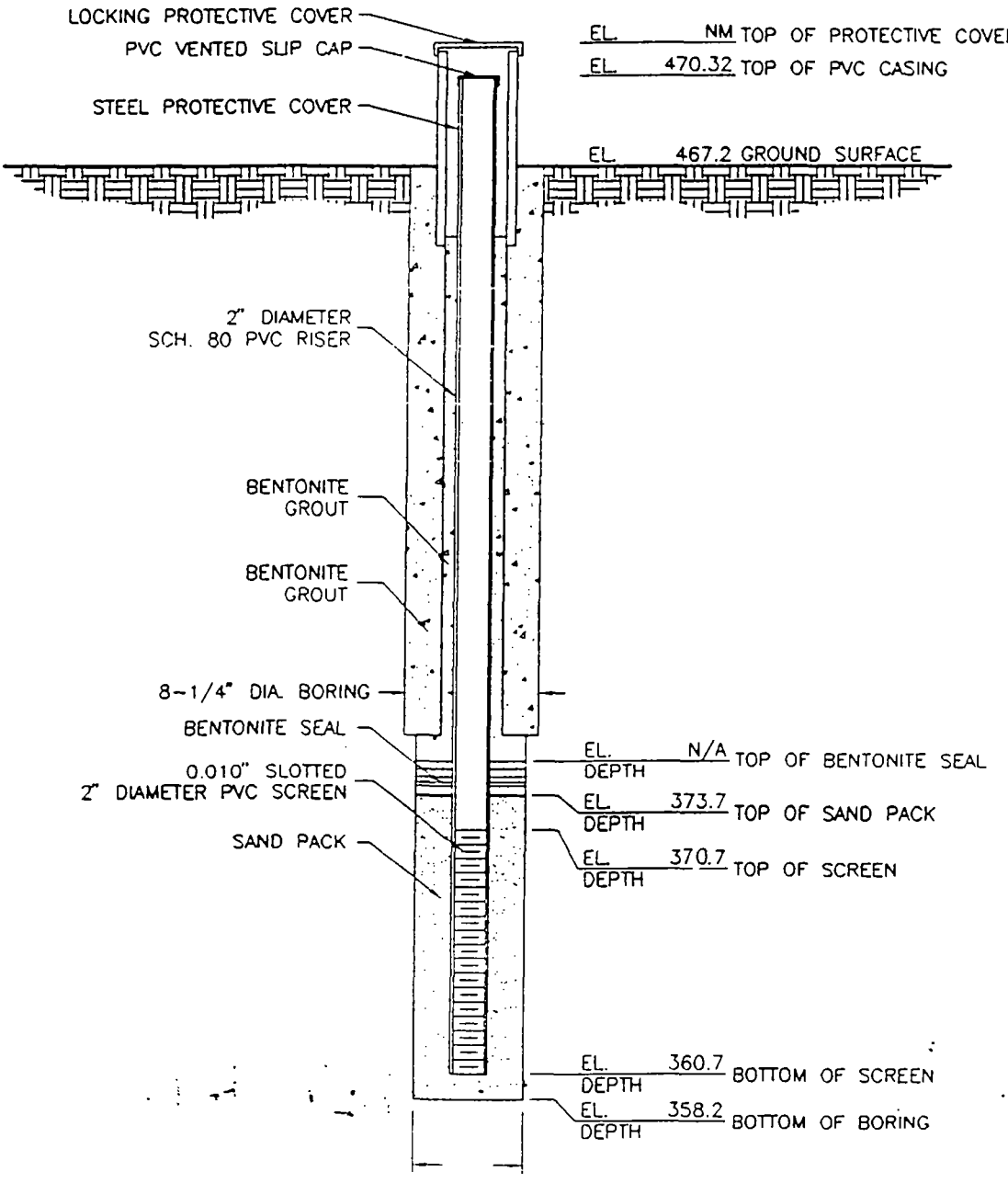
(W2.DWG)

McLaren Hart
ENVIRONMENTAL ENGINEERING CORPORATION

MONITORING WELL DETAILS

PROJECT NO. 070803035
WELL NO. D-3

PROJECT NAME WEST LAKE LANDFILL
WELL LOCATION BRIDGETON, MISSOURI DATE 8/9/95 BY HART ENVIRONMENTAL DRILLING



NOTES:

1. REFER TO SOIL BORING WL-105A FOR SOIL DESCRIPTION.
2. DETAIL NOT TO SCALE.
3. NM = NOT MEASURED
4. N/A NOT APPLICABLE. BENTONITE GROUT/CHIPS USED TO SEAL WELL UP TO SURFACE.

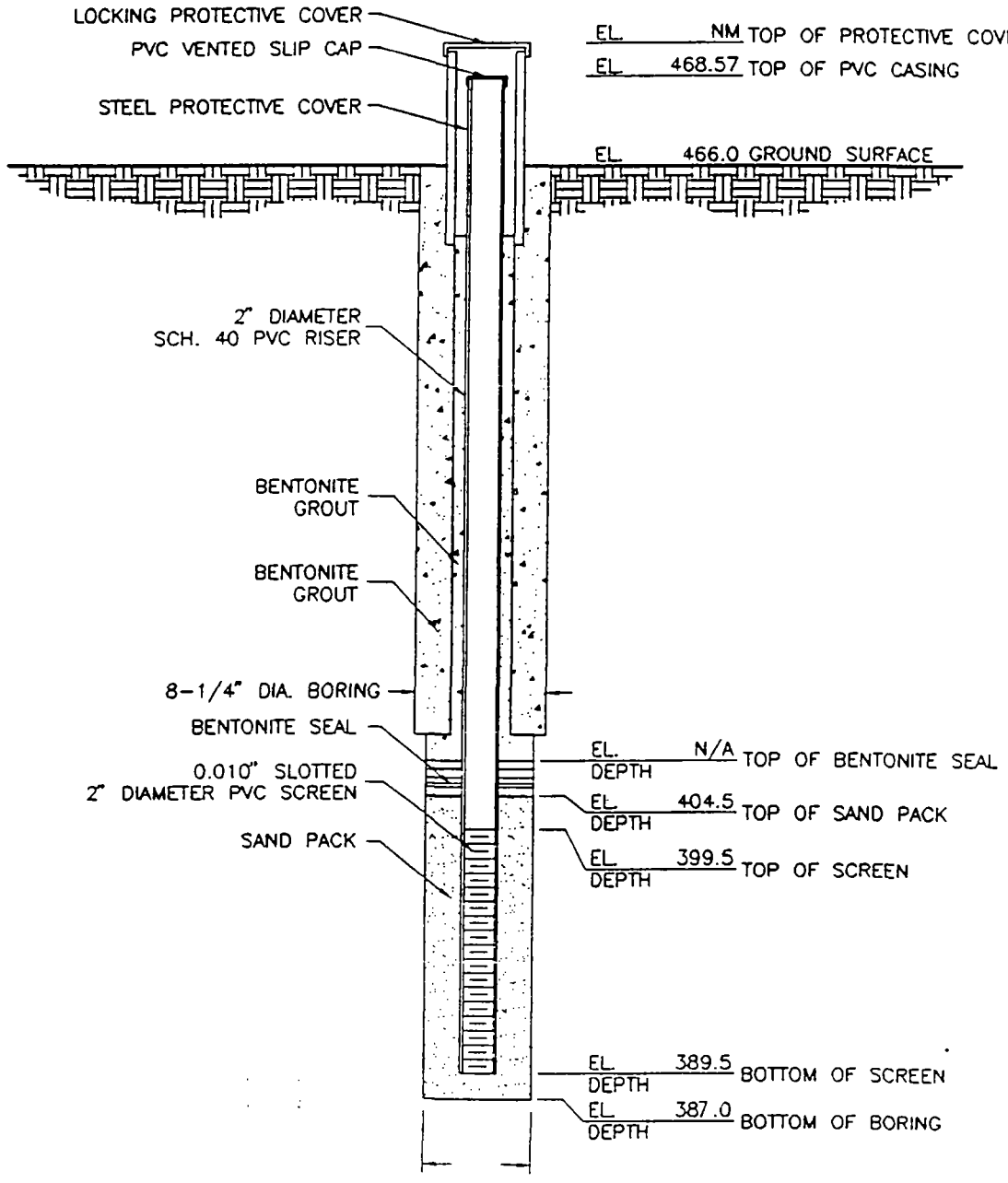
(W3.DWG)

McLaren Hart
ENVIRONMENTAL ENGINEERING CORPORATION

MONITORING WELL DETAILS

PROJECT NO. 070803035
WELL NO. I-4

PROJECT NAME WEST LAKE LANDFILL
WELL LOCATION BRIDGETON, MISSOURI DATE 8/10/95 BY HART ENVIRONMENTAL DRILLING



NOTES:

1. REFER TO SOIL BORING WL-105B FOR SOIL DESCRIPTION.
2. DETAIL NOT TO SCALE.
3. NM = NOT MEASURED
4. N/A NOT APPLICABLE. BENTONITE GROUT/CHIPS USED TO SEAL WELL UP TO SURFACE.

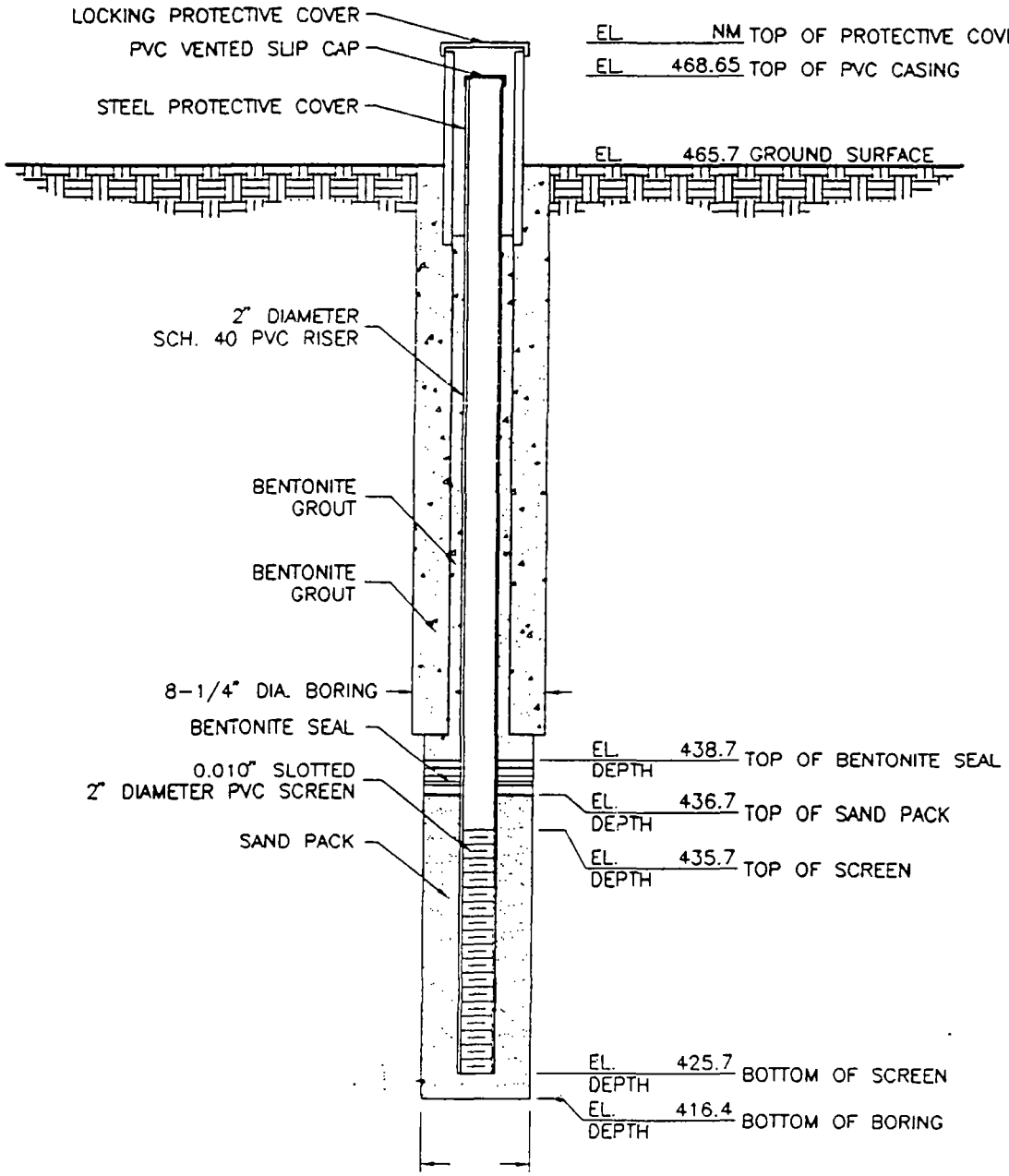
(W4.DWG)

McLaren Hart
ENVIRONMENTAL ENGINEERING CORPORATION

MONITORING WELL DETAILS

PROJECT NO. 070803035
WELL NO. S-5

PROJECT NAME WEST LAKE LANDFILL
WELL LOCATION BRIDGETON, MISSOURI DATE 8/15/95 BY HART ENVIRONMENTAL DRILLING



NOTES:

1. REFER TO SOIL BORING WL-105C FOR SOIL DESCRIPTION.
2. DETAIL NOT TO SCALE.
3. NM = NOT MEASURED

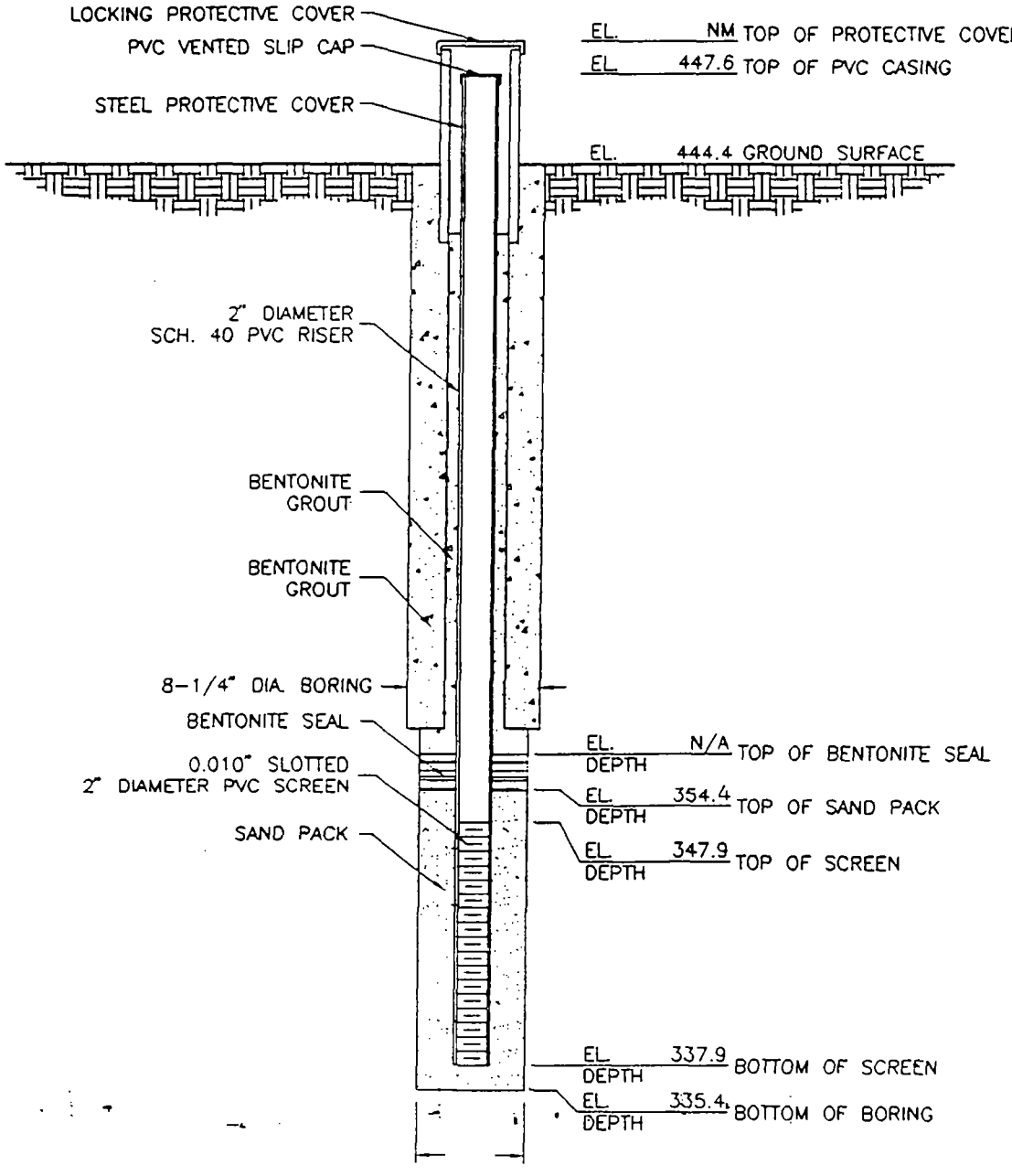
(WS.DWG)

McLaren Hart
ENVIRONMENTAL ENGINEERING CORPORATION

MONITORING WELL DETAILS

PROJECT NO. 070803035
WELL NO. D-6

PROJECT NAME WEST LAKE LANDFILL
WELL LOCATION BRIDGETON, MISSOURI DATE 8/17/95 BY HART ENVIRONMENTAL DRILLING



NOTES:

1. REFER TO SOIL BORING WL-206 SOIL DESCRIPTION.
2. DETAIL NOT TO SCALE.
3. NM = NOT MEASURED
4. N/A NOT APPLICABLE; BENTONITE GROUT USED TO SEAL WELL UP TO SURFACE

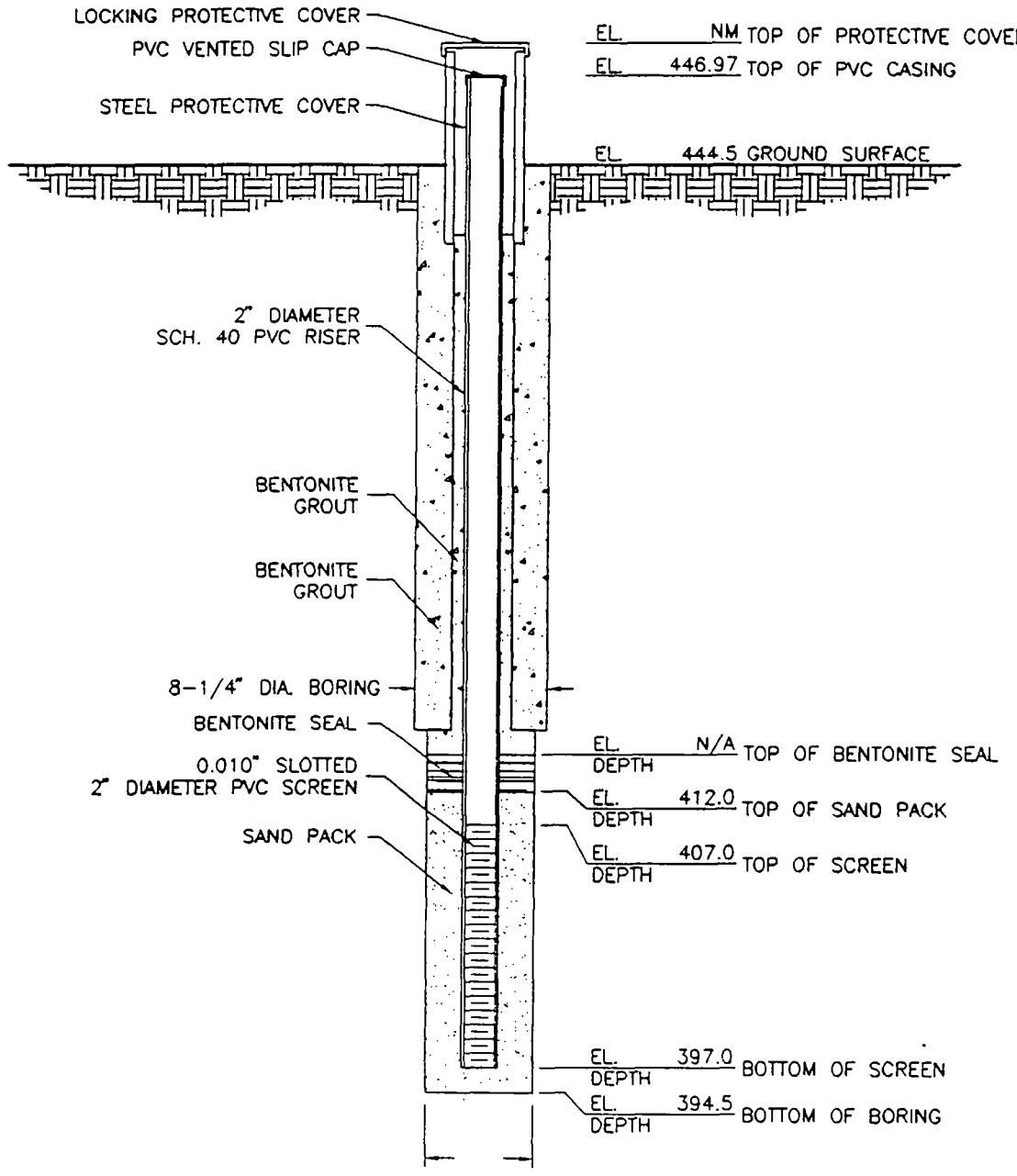
(W6.DWG)

McLaren Hart
ENVIRONMENTAL ENGINEERING CORPORATION

MONITORING WELL DETAILS

PROJECT NO. 070803035
WELL NO. I-7

PROJECT NAME WEST LAKE LANDFILL
WELL LOCATION BRIDGETON, MISSOURI DATE 8/3/95 BY HART ENVIRONMENTAL DRILLING



NOTES:

1. REFER TO SOIL BORING WL-207 SOIL DESCRIPTION.
2. DETAIL NOT TO SCALE.
3. NM = NOT MEASURED
4. N/A NOT APPLICABLE; BENTONITE GROUT USED TO SEAL WELL UP TO SURFACE

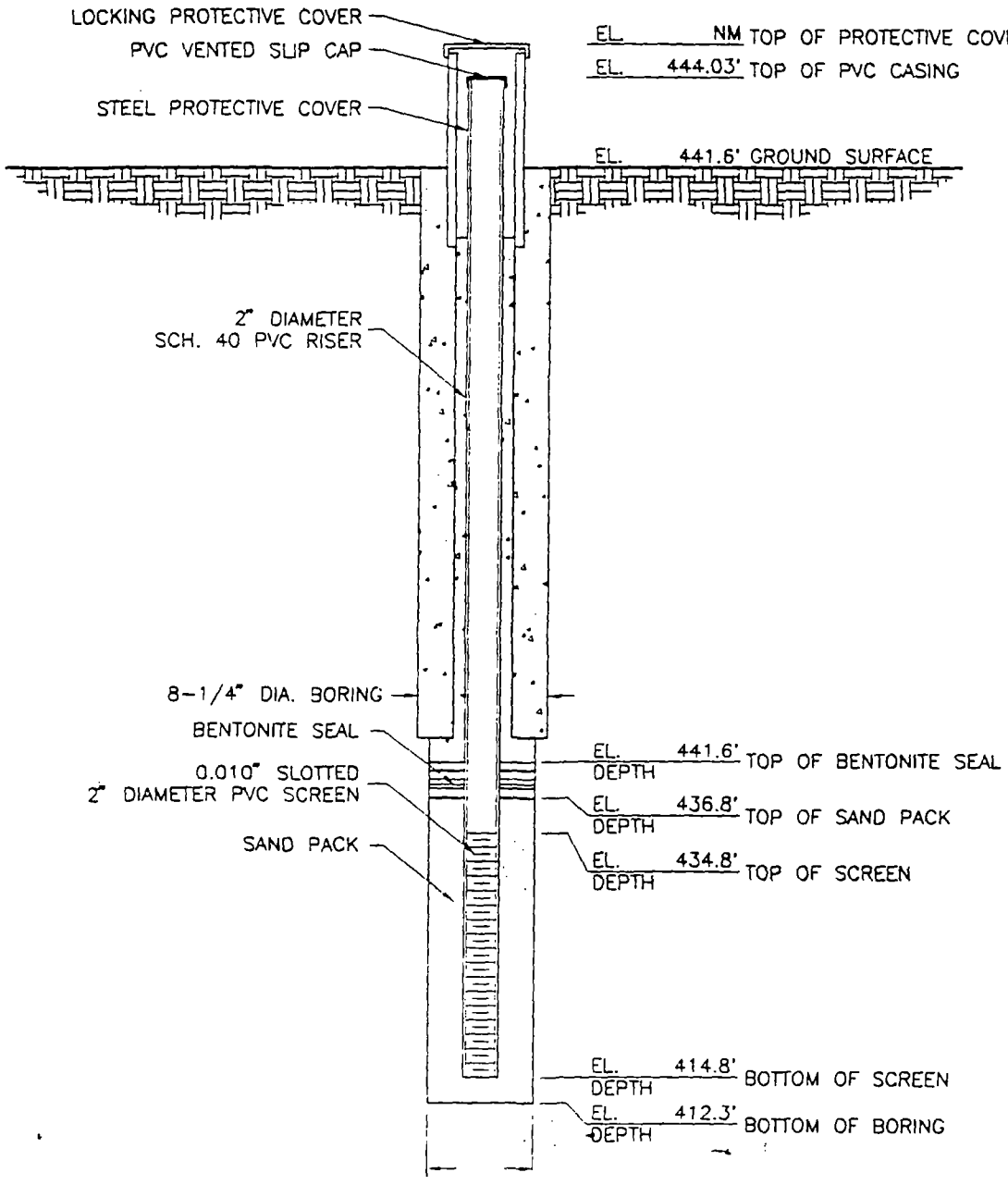
(W7.DWG)

McLaren Hart
ENVIRONMENTAL ENGINEERING CORPORATION

MONITORING WELL DETAILS

PROJECT NO. 070803035
WELL NO. S-8

PROJECT NAME WEST LAKE LANDFILL
WELL LOCATION BRIDGETON, MISSOURI DATE 9/15/95 BY HART ENVIRONMENTAL DRILLING



NOTES:
1. REFER TO SOIL BORING WL-228 FOR SOIL DESCRIPTION.
2. DETAIL NOT TO SCALE.
3. NM = NOT MEASURED.

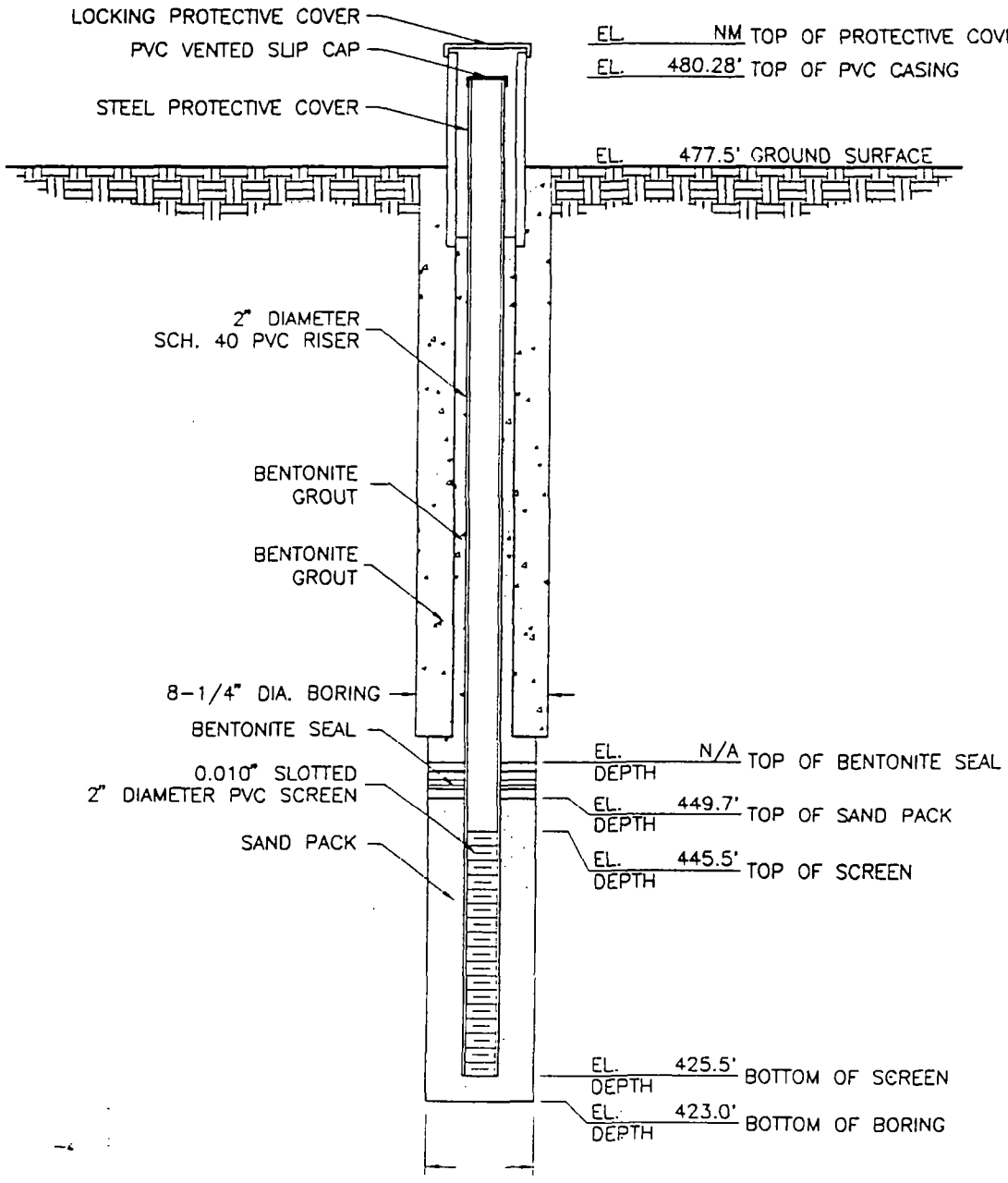
(W8)

McLaren Hart
ENVIRONMENTAL ENGINEERING CORPORATION

MONITORING WELL DETAILS

PROJECT NO. 070803035
WELL NO. S-10

PROJECT NAME WEST LAKE LANDFILL
WELL LOCATION BRIDGETON, MISSOURI DATE 9/19/95 BY HART ENVIRONMENTAL DRILLING



NOTES:

1. REFER TO SOIL BORING WL-216B FOR SOIL DESCRIPTION.
2. DETAIL NOT TO SCALE.
3. NM = NOT MEASURED.
4. N/A = NOT APPLICABLE; BENTONITE GROUT/CHIPS USED TO SEAL WELL UP TO SURFACE.

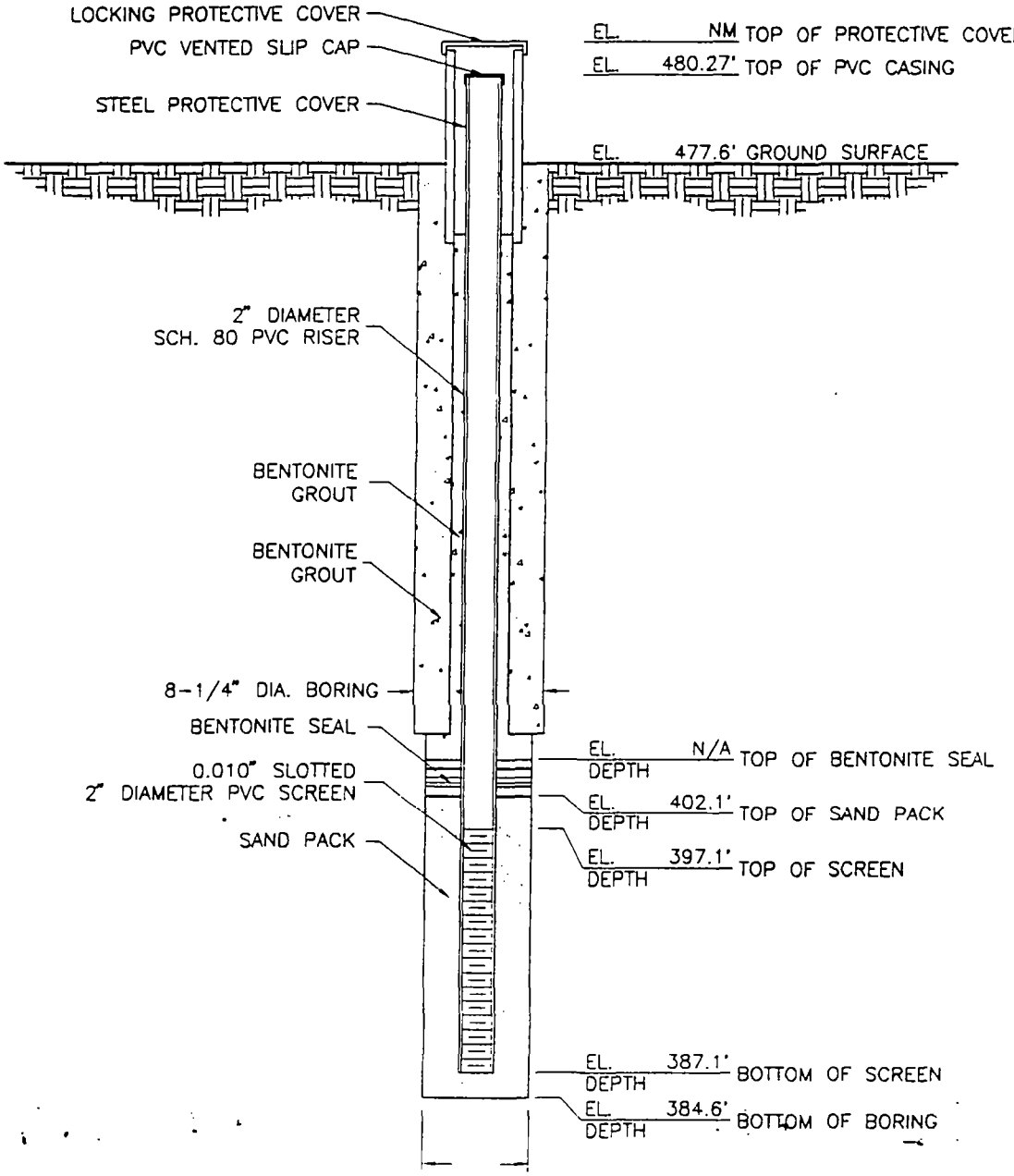
(W10)

McLaren Hart
ENVIRONMENTAL ENGINEERING CORPORATION

MONITORING WELL DETAILS

PROJECT NO. 070803035
WELL NO. I-11

PROJECT NAME WEST LAKE LANDFILL
WELL LOCATION BRIDGETON, MISSOURI DATE 10/13/95 BY HART ENVIRONMENTAL DRILLING



NOTES:

1. REFER TO SOIL BORING WL-216C FOR SOIL DESCRIPTION.
2. DETAIL NOT TO SCALE.
3. NM = NOT MEASURED.
4. N/A = NOT APPLICABLE; BENTONITE GROUT USED TO SEAL WELL UP TO SURFACE.

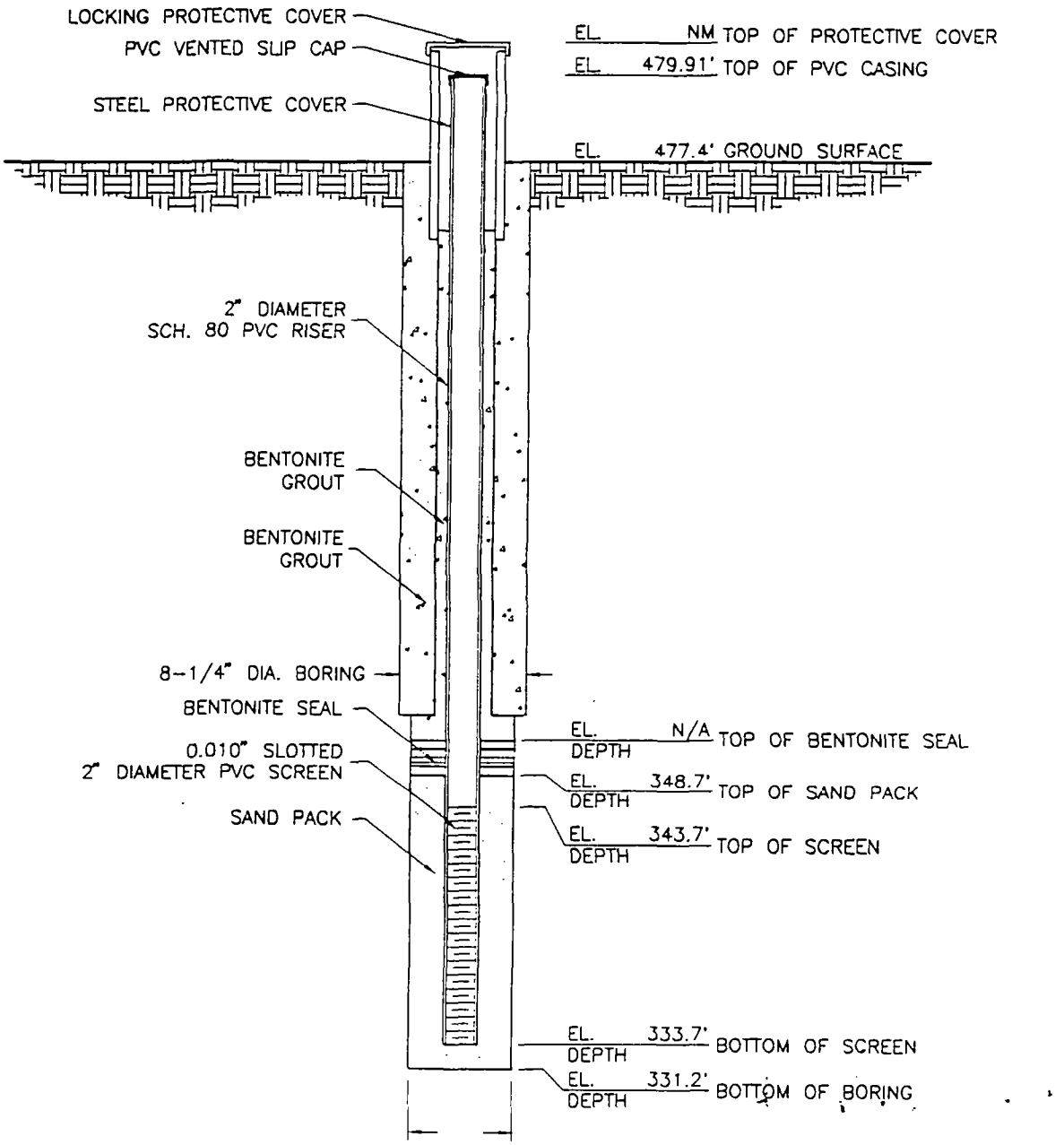
(W11)

McLaren Hart
ENVIRONMENTAL ENGINEERING CORPORATION

MONITORING WELL DETAILS

PROJECT NO. 070803035
WELL NO. D-12

PROJECT NAME WEST LAKE LANDFILL
WELL LOCATION BRIDGETON, MISSOURI DATE 10/17/95 BY HART ENVIRONMENTAL DRILLING



NOTES:

1. REFER TO SOIL BORING WL-216A FOR SOIL DESCRIPTION.
2. DETAIL NOT TO SCALE.
3. NM = NOT MEASURED.
4. N/A = NOT APPLICABLE; BENTONITE GROUT USED TO SEAL WELL UP TO SURFACE.

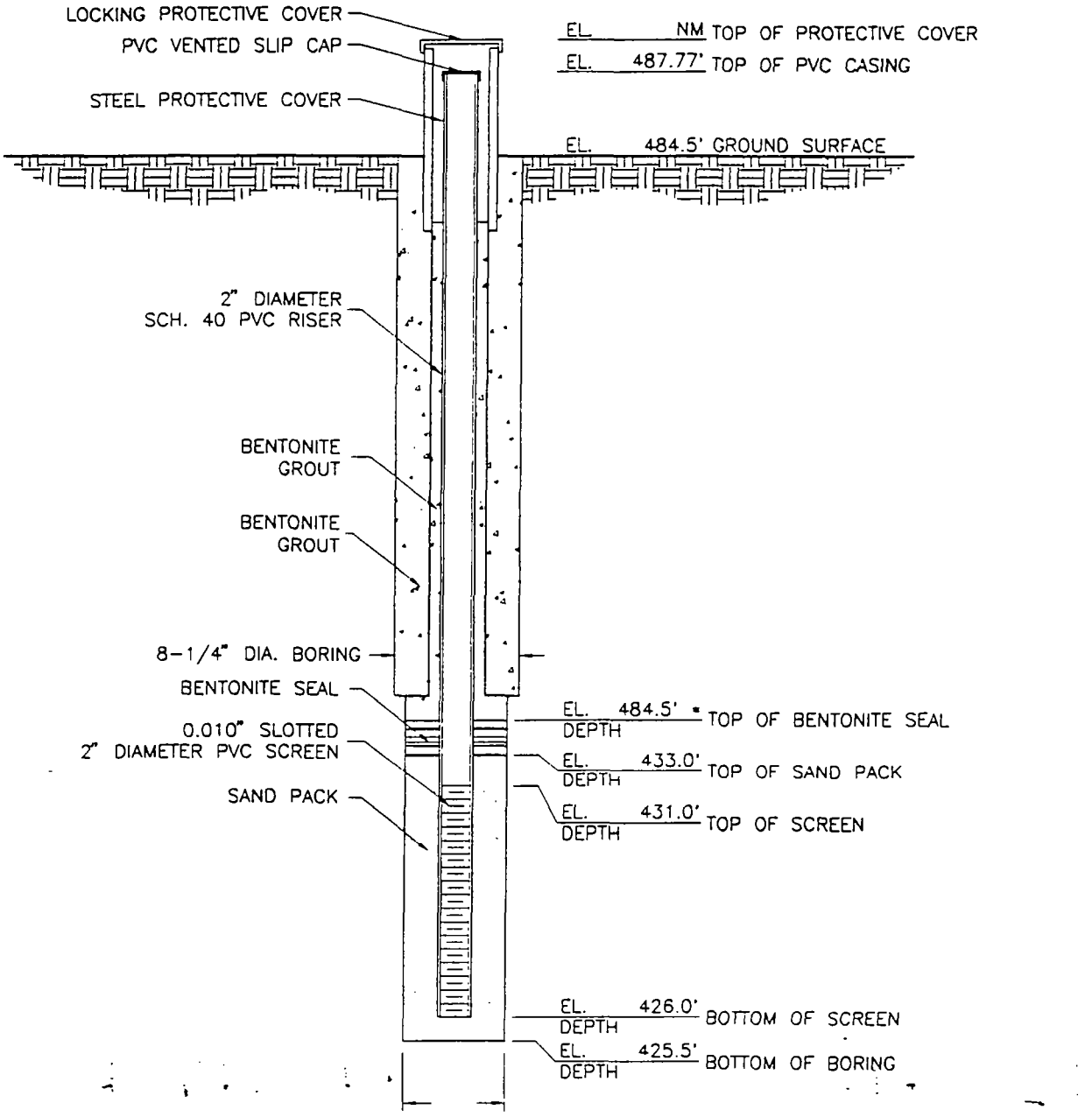
(W12)

McLaren Hart
ENVIRONMENTAL ENGINEERING CORPORATION

MONITORING WELL DETAILS

PROJECT NO. 070803035
WELL NO. D-14

PROJECT NAME WEST LAKE LANDFILL
WELL LOCATION BRIDGETON, MISSOURI DATE 10/24/95 BY HART ENVIRONMENTAL DRILLING

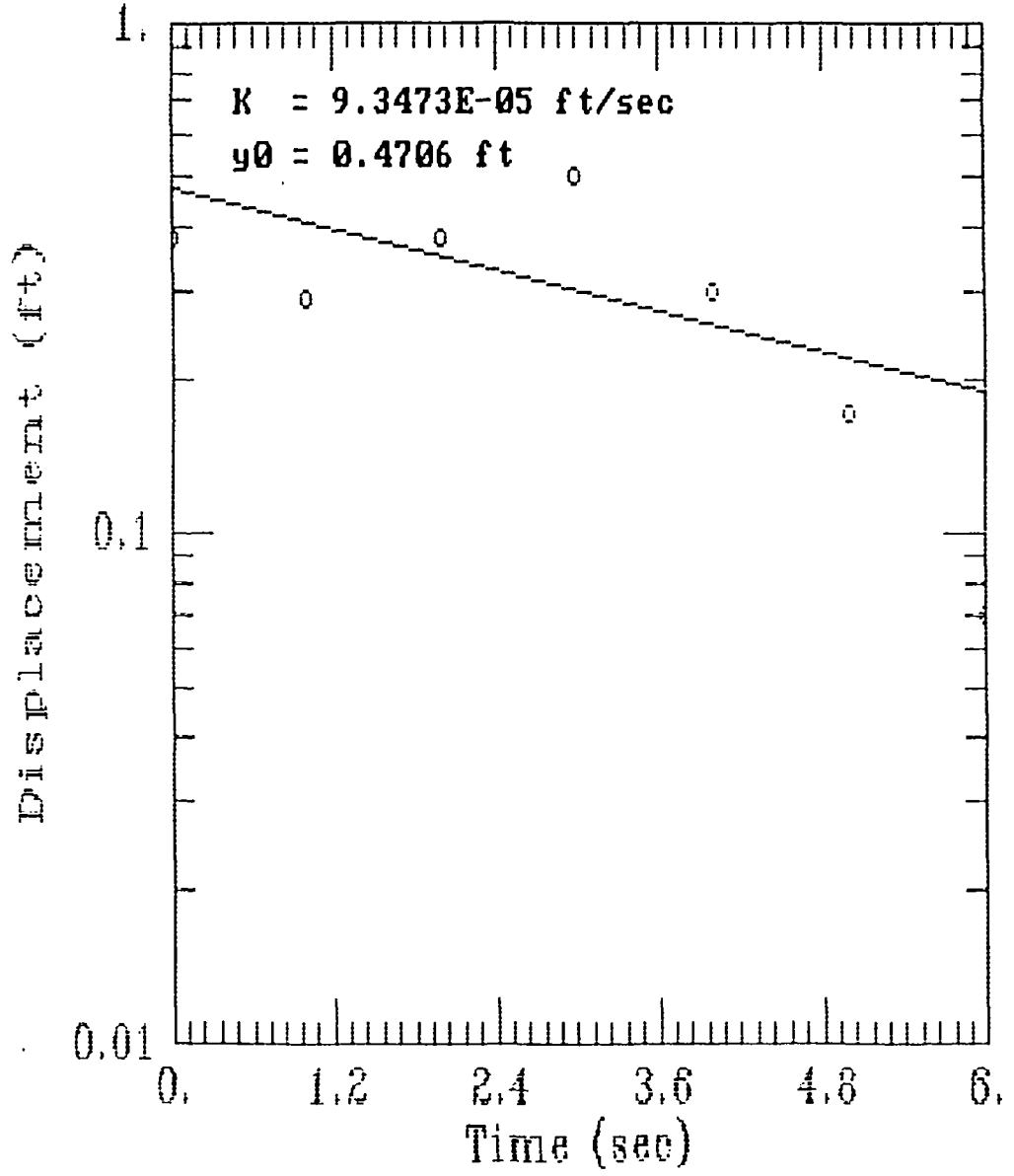


NOTES:

1. REFER TO SOIL BORING WL-109B FOR SOIL DESCRIPTION.
2. DETAIL NOT TO SCALE.
3. NM = NOT MEASURED.
4. * = HYDRATED BENTONITE CHIPS USED TO SEAL WELL UP TO SURFACE.

(W14)

S-8 SLUG TEST DATA W/TELOG RECORDER



AQTESOLV

GERAGHTY & MILLER, INC.

Modeling Group

Aquifer Testing Results

Aquifer Test Results
West Lake Landfill, Bridgeton, Missouri

Monitoring Well	Hydraulic Conductivity K (cm/s) *		
Shallow Depth Wells			
S-1	3.78E-03		
S-5	8.76E-04	Max	3.43E-02
S-8	3.43E-02	Min	8.76E-04
S-84	2.32E-03	Avg	8.22E-03
MW-101	4.17E-03		
MW-F3	3.83E-03		
Intermediate Depth Wells			
I-2	3.27E-02		
I-4	5.41E-02	Max	6.68E-02
I-7	6.68E-02	Min	1.22E-02
I-9	5.47E-02	Avg	4.45E-02
I-11	4.63E-02		
I-68	1.22E-02		
Deep Depth Wells			
D-3	3.15E-02		
D-6	4.29E-02	Max	8.85E-02
D-12	4.14E-02	Min	4.50E-03
D-13	8.85E-02	Avg	4.28E-02
D-85	4.50E-03		
D-93	4.78E-02		

* All Hydraulic Conductivities were determined using the computer software program AQTESOLV ™ (Geraghty & Miller, Inc. 1989). A graph of the data points was assigned a best fit line that was visually positioned on the graph.

Equations for Determining Hydraulic Conductivity (K)
using the Bouwer and Rice method

$$K=\frac{r_c^2 \ln\left(\frac{R_e}{r_w}\right)}{2L_e}\frac{1}{t}\ln\frac{y_o}{y_t}$$

where r_c = radius of well casing
L_e = length of well screen
y_o = displacement at time 0
y_t = displacement at time t

$$\ln\frac{R_e}{r_w}=\left[\left(\frac{1.1}{\ln\frac{L_w}{r_w}}\right)+\left(\frac{A+B\ln\left[\frac{(H-L_w)}{r_w}\right]}{\frac{L_e}{r_w}}\right)\right]^{-1}$$

where L_w = depth from potentiometric surface to bottom of well screen
r_w = radial distance from center of well to native aquifer sediments
H = saturated thickness of the aquifer
A and B = constants taken from a plot in article entitled "the Bouwer and Rice Slug Test - An Update" by Herman Bouwer from Ground Water May-June 1989 Vol. 27, No. 3.

A semi-logarithmic plot of y and t with a best fit line drawn through the data will be plotted. The straight line drawn through the data will allow for selection of y_o and y_t to be substituted into equation 1. See next page for this plot for well S-8. Note this is where the "double straight line effect" will skew the value of K if the wrong part of the double line is chosen.
The use of the Hermit Data recorder will allow for collection of data in more frequent steps and will allow for data to be taken at quicker intervals. This increase in data will help in the decision of which of the double lines is correct for the aquifer conditions.

RISING HEAD SLUG TEST
DATA RECORDED WITH THE TELOG WLS-2109E DATA RECORDER

DATE	TIME	MIN	AVG	MAX
12/12/95"	9:56:48	15.42	15.42	15.42
12/12/95"	9:56:49	14.96	14.96	14.96
12/12/95"	9:56:50	14.81	14.81	14.81
12/12/95"	9:56:51	14.96	14.96	14.96
12/12/95"	9:56:52	15.02	15.02	15.02
12/12/95"	9:56:53	15.33	15.33	15.33
12/12/95"	9:56:54	15.42	15.42	15.42
12/12/95"	9:56:55	15.39	15.39	15.39
12/12/95"	9:56:56	15.36	15.36	15.36
12/12/95"	9:56:57	15.37	15.37	15.37
12/12/95"	9:56:58	15.39	15.39	15.39

BOUWER AND RICE CALCUATION DATA

STATIC WATER LEVEL	13.02'
SCREEN LENGTH	20'
TOP OF SCREEN DEPTH	6.3'
BOTTOM OF SCREEN DEPTH	26.3'
BOTTOM OF AQUIFER DEPTH	109'
WELL DIAMETER	2"
DIAMETER OF FILTER PACK	4.25"

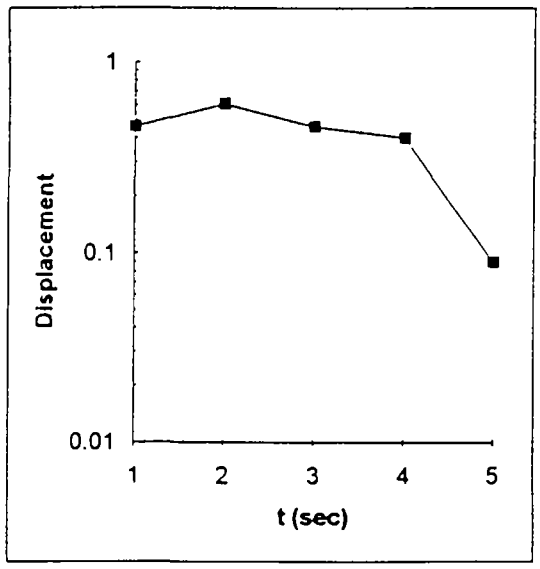
ASSUMPTIONS

Filter pack sand was placed through the middle of the auger flites as the augers were pulled from the ground.
Assume the borehole collapsed around the filter pack (see boring logs for the lithology of the native material) therefore the radial distance from the center of the well to the normal conductivity of the aquifer is 2.125"

Notice the "double straight line effect" from time 2 to 4 seconds and again from 4 to 5 seconds. The data is too coarse to get the points in between these two intervals for correct best fit line interpretation. Without the best fit line, the correct value of K cannot be arrived at.

DATA USED IN PLOT

TIME	DISPACEMENT
1	0.46
2	0.61
3	0.46
4	0.4
5	0.09
6	0
7	0.03
8	0.03
9	0.02
10	0



SP-...-...

MISSOURI DEPARTMENT OF HEALTH

JOHN ASHCROFT
GOVERNOR

ROBERT HARMON, M.D.
DIRECTOR

Site: Westlake Ld
ID #: MBD079960932
Break: 17.8
Other: 5-13-87

May 13, 1987

RECEIVED
MAY 14 1987
WASTE MANAGEMENT PROGRAM

Mr. Keith Schardein, Chief
Superfund Section
Waste Management Program
Missouri Department of Natural Resources
P.O. Box 176
Jefferson City, MO 65102

Dear Mr. ~~Schardein:~~ Keith

Re: Westlake Landfill Registry Site

Enclosed please find the documentation you requested about our source for contamination types and levels at the Westlake Landfill site. If you need more information concerning this site or have any other questions, please feel free to contact me at (314) 751-6102.

Sincerely,

Gale M. Carlson
Environmental Specialist
Bureau of Environmental Epidemiology

GMC:vlh

enclosure

40241235
SUPERFUND RECORDS

DNR 0272

Telephone: (314) 751-6400 P. O. Box 570 Jefferson City, MO 65102

June 28, 1982

DOCUMENTATION RECORDS
FOR
HAZARD RANKING SYSTEM

INSTRUCTIONS: The purpose of these records is to provide a convenient way to prepare an auditable record of the data and documentation used to apply the Hazard Ranking System to a given facility. As briefly as possible summarize the information you used to assign the score for each factor (e.g., "Waste quantity = 4,230 drums plus 800 cubic yards of sludges"). The source of information should be provided for each entry and should be a bibliographic-type reference that will make the document used for a given data point easier to find. Include the location of the document and consider appending a copy of the relevant page(s) for ease in review.

FACILITY NAME: Westlake Landfill

LOCATION: _____

GROUND WATER ROUTE

1 OBSERVED RELEASE

Contaminants detected (5 maximum):

None

Rationale for attributing the contaminants to the facility:

n/a

* * *

2 ROUTE CHARACTERISTICS

Depth to Aquifer of Concern

Name/description of aquifers(s) of concern:

shallow alluvium of Missouri River

Depth(s) from the ground surface to the highest seasonal level of the saturated zone [water table(s)] of the aquifer of concern:

approximately 60 ft.

Depth from the ground surface to the lowest point of waste disposal/ storage:

approximately 35 feet

Net Pr itation

Mean annual or seasonal precipitation (list months for seasonal):

approximately 36"

Mean annual lake or seasonal evaporation (list months for seasonal):

approximately 35"

Net precipitation (subtract the above figures):

+1"

Permeability of Unsaturated Zone

Soil type in unsaturated zone:

silty sands over limestone

Permeability associated with soil type:

approximately 10 -3 to 10 -5 cm/sec.

Physical State

Physical state of substances at time of disposal (or at present time for generated gases):

liquid

* * *

3 CONTAINMENT

Containment

Method(s) of waste or leachate containment evaluated:

Landfill; no liner; some ponding

Method with highest score:

above

4 WASTE CHARACTERISTICS

Toxicity and Persistence

Compound(s) evaluated:

Chlordane
TCE
Toluene

Compound with highest score:

Chlordane

Hazardous Waste Quantity

Total quantity of hazardous substances at the facility, excluding those with a containment score of 0 (Give a reasonable estimate even if quantity is above maximum):

4000 tons Pesticides
7000 tons Low-level uranium
Undetermined amounts of waste solvents

Basis of estimating and/or computing waste quantity:

"Superfund Notifications"
Interviews and Company records

* * *

5 TARG.

Ground Water Use

Use(s) of aquifer(s) of concern within a 3-mile radius of the facility:

Commercial with municipal water available

Distance to Nearest Well

Location of nearest well drawing from aquifer of concern or occupied building not served by a public water supply:

Not used for drinking water

Distance to above well or building:

n/a

Population Served by Ground Water Wells Within a 3-Mile Radius

Identified water-supply well(s) drawing from aquifer(s) of concern within a 3-mile radius and populations served by each:

n/a

Computation of land area irrigated by supply well(s) drawing from aquifer(s) of concern within a 3-mile radius, and conversion to population (1.5 people per acre):

n/a

Total population served by ground water within a 3-mile radius:

None

SURFACE WATER ROUTE

1 OBSERVED RELEASE

Contaminants detected in surface water at the facility or downhill from it (5 maximum):

None

Rationale for attributing the contaminants to the facility:

n/a

* * *

2 ROUTE CHARACTERISTICS

Facility Slope and Intervening Terrain

Average slope of facility in percent:

greater than 8% slope

Name/description of nearest downslope surface water:

Missouri River

Average slope of terrain between facility and above-cited surface water body in percent:

between 3 and 5% slope

Is the facility located either totally or partially in surface water?

No

Is the facility completely surrounded by areas of higher elevation?

No

1-Year 24-Hour Rainfall in Inches

between 2.5-30 inches

Distance to Nearest Downslope Surface Water

between 1 and 2 miles

Physical State of Waste

liquids

* * *

3 CONTAINMENT

Containment

Method(s) of waste or leachate containment evaluated:

Landfill, diversion system unsound

Method with highest score:

above

4 WASTE CHARACTERISTICS

Toxicity and Persistence

Compound(s) evaluated

See groundwater

Compound with highest score:

see groundwater

Hazardous Waste Quantity

Total quantity of hazardous substances at the facility, excluding those with a containment score of 0 (Give a reasonable estimate even if quantity is above maximum):

see groundwater

Basis of estimating and/or computing waste quantity:

see groundwater

* * *

5 TARGETS

Surface Water Use

Use(s) of surface water within 3 miles downstream of the hazardous substance:

Recreation

Is the[illegible]idal influence?

No

Distance to a Sensitive Environment

Distance to 5-acre (minimum) coastal wetland, if 2 miles or less:

n/a

Distance to 5-acre (minimum) fresh-water wetland, if 1 mile or less:

n/a

Distance to critical habitat of an endangered species or national wildlife refuge, if 1 mile or less:

n/a

Population Served by Surface Water

Location(s) of water-supply intake(s) within 3 miles (free-flowing bodies) or 1 mile (static water bodies) downstream of the hazardous substance and population served by each intake:

None

Computa. . of land area irrigated by above-cited intake(s) conversion to population (1.5 people per acre):

n/a

Total population served:

None

Name/description of nearest of above water bodies:

Missouri River

Distance to above-cited intakes, measured in stream miles.

n/a

1 OBSERVED RELEASE

Contaminants detected:

None

Date and location of detection of contaminants

n/a

Methods used to detect the contaminants:

n/a

Rationale for attributing the contaminants to the site:

n/a

* * *

2 WASTE CHARACTERISTICS

Reactivity and Incompatibility

Most reactive compound:

n/a

Most incompatible pair of compounds:

n/a

Toxici.

Most toxic compound:

n/a

Hazardous Waste Quantity

Total quantity of hazardous waste:

n/a

Basis of estimating and/or computing waste quantity:

n/a

* * *

3 TARGETS

Population Within 4-Mile Radius

Circle radius used, give population, and indicate how determined:

0 to 4 mi 0 to 1 mi 0 to 1/2 mi 0 to 1/4 mi

n/a

Distance to a Sensitive Environment

Distance to 5-acre (minimum) coastal wetland, if 2 miles or less:

n/a

Distance to 5-acre (minimum) fresh-water wetland, if 1 mile or less:

n/a

Distan[illegible] critical habitat of an endangered species, if [illegible]e or less:

n/a

Land Use

Distance to commercial/industrial area, if 1 mile or less:

n/a

Distance to national or state park, forest, or wildlife reserve, if 2 miles or less:

n/a

Distance to residential area, if 2 miles or less:

n/a

Distance to agricultural land in production within past 5 years, if 1 mile or less:

n/a

Distance to prime agricultural land in production within past 5 years, if 2 miles or less:

n/a

Is a historic or landmark site (National Register or Historic Places and National Natural Landmarks) within the view of the site?

n/a

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT

SITE NUMBER (To be assigned by HQ): III 1475

GENERAL INSTRUCTIONS: Complete Sections I and III through XV of this form as completely as possible. Then use the information on this form to develop a Tentative Disposition (Section II). File this form in its entirety in the regional Hazardous Waste Log File. Be sure to include all appropriate Supplemental Reports in the file. Submit a copy of the forms to: U.S. Environmental Protection Agency; Site Tracking System; Hazardous Waste Enforcement Task Force (EN-335); 401 M St., SW; Washington, DC 20460.

I. SITE IDENTIFICATION

A. SITE NAME: Westlake Quarry Landfill
B. STREET (or other identifier): Rt. 1 Box 206
C. CITY: Bridgeton
D. STATE: Mo.
E. ZIP CODE: 63044
F. COUNTY NAME: St. Louis

G. SITE OPERATOR INFORMATION
1. NAME: William Canney
2. TELEPHONE NUMBER: 314 739-1122
3. STREET: Rt. 1 Box 206
4. CITY: Bridgeton
5. STATE: Mo.
6. ZIP CODE: 63042

H. REALTY OWNER INFORMATION (If different from operator of site)
1. NAME: Estate of V.R. Cruse - Catherine Cruse and L.E. Tramp a partnership.
2. TELEPHONE NUMBER: 314 739-1122
3. CITY: Rt. 1 Box 206 Bridgeton
4. STATE: Mo.
5. ZIP CODE: 63042

I. SITE DESCRIPTION: State Approved Sanitary and Demolition Landfills

J. TYPE OF OWNERSHIP
* ☐ 1. FEDERAL ☐ 2. STATE ☐ 3. COUNTY ☐ 4. MUNICIPAL ☒ 5. PRIVATE

II. TENTATIVE DISPOSITION (complete this section last)

A. ESTIMATE DATE OF TENTATIVE DISPOSITION (mo., day, & yr.):
B. APPARENT SERIOUSNESS OF PROBLEM
☐ 1. HIGH ☒ 2. MEDIUM ☐ 3. LOW ☐ 4. NONE

C. PREPARER INFORMATION
1. NAME: Robert Pappenfort
2. TELEPHONE NUMBER: 314 751-3241
3. DATE (mo., day, & yr.): 12/10/79

III. INSPECTION INFORMATION

A. PRINCIPAL INSPECTOR INFORMATION
1. NAME: Mike Oswall (5/31/79) Howard Winburn (2/2/79)
2. TITLE: Environmental Specialist Environmental Engineer
3. ORGANIZATION: Mo. Department of Natural Resources
4. TELEPHONE NO. (area code & no.): 314 849-1313

B. INSPECTION PARTICIPANTS

1. NAME	2. ORGANIZATION	3. TELEPHONE NO.
Same as above.		

C. SITE REPRESENTATIVES INTERVIEWED (corporate officials, workers, residents)

1. NAME	2. TITLE & TELEPHONE NO.	3. ADDRESS
Mr. William Canney	Site Operator 314 739-1122	Rt. 1 Box 206 Bridgeton, Mo. 63042

Continued From Front

III. INSPECTION INFORMATION (continued)

D. GENERATOR INFORMATION (sources of waste)

1. NAME	2. TELEPHONE NO.	3. ADDRESS	4. WASTE TYPE GENERATED
Borden Chemical Printing Ink. Div.	314 991-2544	1185 Research St. Louis, Mo. 63132	Waste Ink, Pigment Oily Sludges, Ester
Cheron Chemical Co.	314 432-8234	2497 Adie Road Maryland Heights, Mo. 63043	Insecticides, Herb. Halogenated/Intr. Aromatics, oils
Pfizer, Inc.	618-271-4800	423 West 55th Street New York, New York 10019	Wastewater Sludge From E. St. Louis

E. TRANSPORTER/HAULER INFORMATION

1. NAME	2. TELEPHONE NO.	3. ADDRESS	4. WASTE TYPE TRANSPORTED

F. IF WASTE IS PROCESSED ON SITE AND ALSO SHIPPED TO OTHER SITES, IDENTIFY OFF-SITE FACILITIES USED FOR DISPOSAL.

1. NAME	2. TELEPHONE NO.	3. ADDRESS

G. DATE OF INSPECTION (mo., day, & yr.)	H. TIME OF INSPECTION	I. ACCESS GAINED BY: (credentials must be shown in all cases)
2/2/79 5/31/79	DAYTIME	☒ 1. PERMISSION ☐ 2. WARRANT

J. WEATHER (describe)
N/A.

IV. SAMPLING INFORMATION

A. Mark 'X' for the types of samples taken and indicate where they have been sent e.g., regional lab, other EPA lab, contractor, etc. and estimate when the results will be available.

1. SAMPLE TYPE	2. SAMPLE TAKEN (mark 'X')	3. SAMPLE SENT TO:	4. DATE RESULTS AVAILABLE
a. GROUNDWATER	X	All 9 Monitoring Wells sampled	6/12/79
b. SURFACE WATER		Four Groundwater Wells Sampled in Early 1979	See DNR File
c. WASTE			
d. AIR			
e. RUNOFF			
f. SPILL			
g. SOIL	X	33 test borings made in 1973.	See ENG. PLANS - Mo.
h. VEGETATION			
i. OTHER (specify) Leachate	1/23/78	MSD - St. Louis	See DNR File

B. FIELD MEASUREMENTS TAKEN (e.g., radioactivity, explosivity, PH, etc.)

1. TYPE	2. LOCATION OF MEASUREMENTS	3. RESULTS

Continued From Front

V. WASTE RELATED INFORMATION (continued)

2. Estimate the amount (city unit of measure) of waste by category; mark 'X' to indicate which are present.

a. SLUDGE	b. OIL	c. SOLVENTS	d. CHEMICALS	e. SOLIDS	f. OTHER
AMOUNT	AMOUNT: Unknown ⟷	AMOUNT	AMOUNT: 4000	AMOUNT: 2100	AMOUNT: UNKNOWN
UNIT OF MEASURE	UNIT OF MEASURE	UNIT OF MEASURE	UNIT OF MEASURE: TONS	UNIT OF MEASURE: TONS	UNIT OF MEASURE: UNKNOWN
[ ] (1) PAINT, PIGMENTS	[X] (1) OILY WASTES	[ ] (1) HALOGENATED SOLVENTS	[ ] (1) ACIDS	[ ] (1) FLYASH	[ ] (1) LABORATORY, PHARMACEUT.
[ ] (2) METALS SLUDGES	[X] (2) OTHER (specify): Int. Sludge	[X] (2) NON-HALOGNTD. SOLVENTS	[ ] (2) PICKLING LIQUORS	[ ] (2) ASBESTOS	[ ] (2) HOSPITAL
[ ] (3) POTW		[ ] (3) OTHER (specify):	[ ] (3) CAUSTICS	[X] (3) MILLING/MINE TAILINGS SLUDGE	[X] (3) RADIOACTIVE (Low Level)
[ ] (4) ALUMINUM SLUDGE			[X] (4) PESTICIDES	[ ] (4) FERROUS SMELTING WASTES	[ ] (4) MUNICIPAL
[ ] (5) OTHER (specify):			[ ] (5) DYES/INKS	[ ] (5) NON-FERROUS SMLTG. WASTES	[ ] (5) OTHER (specify): Waste Ore Residuals from old Cotter Corporation, Laddie Avenue St. Louis, Mo.
			[ ] (6) CYANIDE	[ ] (6) OTHER (specify):	
			[ ] (7) PHENOLS		
			[X] (8) HALOGENS - AROMATICS		
			[ ] (9) PCB		
			[X] (10) METALS		
			[ ] (11) OTHER (specify)		

D. LIST SUBSTANCES OF GREATEST CONCERN WHICH ARE ON THE SITE (place in descending order of hazard)

1. SUBSTANCE	2. FORM (mark 'X') a. SOLID	b. LIQ.	c. VAPOR	3. TOXICITY (mark 'X') a. HIGH	b. MED.	c. LOW	d. NONE	4. CAS NUMBER	5. AMOUNT	6. UNIT
Pesticides - Herbicide Residues	X					Unknown			4000	tons
Low Level Rad. Wastes	X					Unknown			?	tons

VIII. HAZARD DESCRIPTION

FIELD EVALUATION HAZARD DESCRIPTION: Place an 'X' in the box to indicate that the listed hazard exists. Describe the hazard in the space provided.

[ ] A. HUMAN HEALTH HAZARDS

Continued From Pag

IV. SAMPLING INFORMATION (continued)

C. PHOTOS

1. TYPE OF PHOTOS: ☐ a. GROUND ☒ b. AERIAL

2. PHOTOS IN CUSTODY OF: Mo. DNR - See Engineering Plans

D. SITE MAPPED?

☒ YES. SPECIFY LOCATION OF MAPS: Sec. 13 T47N R5E St. Louis County

E. COORDINATES

1. ~~LATITUDE (deg-min-sec)~~

2. ~~LONGITUDE (deg-min-sec)~~

V. SITE INFORMATION

A. SITE STATUS

☒ 1. ACTIVE *(Those industrial or municipal sites which are being used for waste treatment, storage, or disposal on a continuing basis, even if infrequently.)*

☐ 2. INACTIVE *(Those sites which no longer receive wastes.)*

☐ 3. OTHER *(specify)*: _____ *(Those sites that include such incidents like "midnight dumping" where no regular or continuing use of the site for waste disposal has occurred.)*

B. IS GENERATOR ON SITE?

☒ 1. NO ☐ 2. YES *(specify generator's four-digit SIC Code)*: _____

C. AREA OF SITE *(in acres)*

Site 1 - 25 Acres
Site 2 - 13 Acres

D. ARE THERE BUILDINGS ON THE SITE?

☐ 1. NO ☒ 2. YES *(specify)*: Quarry Buildings for Plant

VI. CHARACTERIZATION OF SITE ACTIVITY

Indicate the major site activity(ies) and details relating to each activity by marking 'X' in the appropriate boxes.

X	A. TRANSPORTER	X	B. STORER	X	C. TREATER	X	D. DISPOSER
	1. RAIL		1. PILE		1. FILTRATION	X	1. LANDFILL
	2. SHIP		2. SURFACE IMPOUNDMENT		2. INCINERATION		2. LANDFARM
	3. BARGE		3. DRUMS		3. VOLUME REDUCTION		3. OPEN DUMP
	4. TRUCK		4. TANK, ABOVE GROUND		4. RECYCLING/RECOVERY		4. SURFACE IMPOUNDMENT
	5. PIPELINE		5. TANK, BELOW GROUND		5. CHEM./PHYS./TREATMENT		5. MIDNIGHT DUMPING
	6. OTHER *(specify)*:		6. OTHER *(specify)*:		6. BIOLOGICAL TREATMENT		6. INCINERATION
					7. WASTE OIL REPROCESSING		7. UNDERGROUND INJECTION
					8. SOLVENT RECOVERY		8. OTHER *(specify)*:
					9. OTHER *(specify)*:		

E. SUPPLEMENTAL REPORTS: If the site falls within any of the categories listed below, Supplemental Reports must be completed. Indicate which Supplemental Reports you have filled out and attached to this for..

☐ 1. STORAGE ☐ 2. INCINERATION ☒ 3. LANDFILL ☐ 4. SURFACE IMPOUNDMENT ☐ 5. DEEP WELL

☐ 6. CHEM/BIO/PHYS TREATMENT ☐ 7. LANDFARM ☐ 8. OPEN DUMP ☐ 9. TRANSPORTER ☐ 10. RECYCLOR/RECLAIMER

VII. WASTE RELATED INFORMATION

A. WASTE TYPE

☐ 1. LIQUID ☒ 2. SOLID ☒ 3. SLUDGE ☐ 4. GAS

B. WASTE CHARACTERISTICS

☐ 1. CORROSIVE ☒ 2. IGNITABLE ☒ 3. RADIOACTIVE ☐ 4. HIGHLY VOLATILE

☒ 5. TOXIC ☐ 6. REACTIVE ☐ 7. INERT ☐ 8. FLAMMABLE

☐ 9. OTHER *(specify)*:

C. WASTE CATEGORIES

1. Are records of wastes available? Specify items such as manifests, inventories, etc. below.

Continued From Page 4

VIII. HAZARD DESCRIPTION (continued)

☐ N. FIRE OR EXPL

☒ O. SPILLS/LEAKING CONTAINERS/RUNOFF/STANDING LIQUID

In quarry from seepage from west wall. (2/3/79)

☒ P. SEWER, STORM DRAIN PROBLEMS

Significant Amount of Water Intrusion Occurring in the West Wall of the Quarry. (5/31/79)

☒ Q. EROSION PROBLEMS

Area near side slope near the original Leachate collection wall has some erosion. (5/31/79)

☐ R. INADEQUATE SECURITY

☒ S. INCOMPATIBLE WASTES Much non-demolition material was placed in the demolition landfill.

VIII. HAZARD DESCRIPTION (continued)

☐ T. MIDNIGHT DUMPING

☐ U. OTHER (specify):

IX. POPULATION DIRECTLY AFFECTED BY SITE

A. LOCATION OF POPULATION	B. APPROX. NO. OF PEOPLE AFFECTED	C. APPROX. NO. OF PEOPLE AFFECTED WITHIN UNIT AREA	D. APPROX. NO. OF BUILDINGS AFFECTED	E. DISTANCE TO SITE (specify units)
1. IN RESIDENTIAL AREAS	1 occupied residence in the neighborhood			
2. IN COMMERCIAL OR INDUSTRIAL AREAS				
3. IN PUBLICLY TRAVELLED AREAS	NEAR Interstate 70	(400' ±)		
4. PUBLIC USE AREAS (parks, schools, etc.)				

X. WATER AND HYDROLOGICAL DATA

A. DEPTH TO GROUNDWATER (specify unit)	B. DIRECTION OF FLOW	C. GROUNDWATER USE IN VICINITY
Water Table 440' elev.	Westward to Missouri River	
D. POTENTIAL YIELD OF AQUIFER	**E. DISTANCE TO DRINKING WATER SUPPLY (specify unit of measure)**	**F. DIRECTION TO DRINKING WATER SUPPLY**
N/A	2 miles to Mo. River	West

G. TYPE OF DRINKING WATER SUPPLY

☐ 1. NON-COMMUNITY < 15 CONNECTIONS ☐ 2. COMMUNITY (specify town): > 15 CONNECTIONS _____

☒ 3. SURFACE WATER ☐ 4. WELL

Continue On Page 9

Continued From Page 8

X. WATER AND HYDROLOGICAL DATA (continued)

H. LIST ALL DRINKING WATER WELLS WITHIN A 1/4 MILE RADIUS OF SITE

1. WELL	2. DEPTH (specify unit)	3. LOCATION (proximity to population/ buildings)	4. NON-COMMUNITY (mark 'X')	5. COMMUNITY (mark 'X')
	See Missouri Geological Survey, Rolla, Mo.			

I. RECEIVING WATER

1. NAME: Missouri River

☐ 2. SEWERS ☒ 3. STREAMS/RIVERS ☐ 4. LAKES/RESERVOIRS ☐ 5. OTHER (specify):

6. SPECIFY USE AND CLASSIFICATION OF RECEIVING WATERS

XI. SOIL AND VEGITATION DATA

LOCATION OF SITE IS IN:

☐ A. KNOWN FAULT ZONE ☐ B. KARST ZONE ☒ C. ~~100 YEAR FLOOD PLAIN~~ Missouri River Alluvium ☐ D. WETLAND

☐ E. A REGULATED FLOODWAY ☐ F. CRITICAL HABITAT ☐ G. RECHARGE ZONE OR SOLE SOURCE AQUIFER

XII. TYPE OF GEOLOGICAL MATERIAL OBSERVED

Mark 'X' to indicate the type(s) of geological material observed and specify where necessary, the component parts.

'X'	A. OVERBURDEN	'X'	B. BEDROCK (specify below)	'X'	C. OTHER (specify below)
X	1. SAND - SILT (60')			X	Groundwater @ 20-30'
X	2. CLAY (Moist)				or 740' elevation
	3. GRAVEL				

XIII. SOIL PERMEABILITY

☐ A. UNKNOWN ☐ B. VERY HIGH (100,000 to 1000 cm/sec.) ☐ C. HIGH (1000 to 10 cm/sec.)

☐ D. MODERATE (10 to .1 cm/sec.) ☒ E. ~~LOW~~ HIGH (.1 to .001 cm/sec.) ☐ F. VERY LOW (.001 to .00001 cm/sec.)

G. RECHARGE AREA

☒ 1. YES ☐ 2. NO 3. COMMENTS:

H. DISCHARGE AREA

☐ 1. YES ☐ 2. NO 3. COMMENTS:

I. SLOPE

1. ESTIMATE % OF SLOPE	2. SPECIFY DIRECTION OF SLOPE, CONDITION OF SLOPE, ETC.
50/12,000	WESTWARD

J. OTHER GEOLOGICAL DATA

Continued From Fro

XIV. PERMIT INFORMATION

List all applicable permits held by the site and provide the related information.

A. PERMIT TYPE (e.g., RCRA, State, NPDES, etc.)	B. ISSUING AGENCY	C. PERMIT NUMBER	D. DATE ISSUED (mo., day, & yr.)	E. EXPIRATION DATE (mo., day, & yr.)	F. IN COMPLIANCE (mark 'X') 1. YES	2. NO	3. UNKNOWN
State (25 Acres)	Mo. Dir. of Natural	118903 218903	8/27/74				
State (13 acres)	Mo. DNR	118906	1/22/79	N/A			

XV. PAST REGULATORY OR ENFORCEMENT ACTIONS

☐ NONE ☐ YES (summarize in this space)

NOTE: Based on the information in Sections III through XV, fill out the Tentative Disposition (Section II) information on the first page of this form.

LANDFILLS SITE INSPECTION REPORT
(Supplemental Report)

INSTRUCTION
Answer and Explain as Necessary.

1. EVIDENCE OF SITE INSTABILITY *(Erosion, Settling, Sink Holes, etc)*
☒ YES ☐ NO

2. EVIDENCE OF IMPROPER DISPOSAL OF BULK LIQUIDS, SEMI-SOLIDS AND SLUDGES INTO THE LANDFILL
☒ YES ☐ NO

3. CHECK RECORDS OF CELL LOCATION AND CONTENTS AND BENCHMARK
☐ YES ☒ NO

4. WASTES SURROUNDED BY SORBENT MATERIAL
☐ YES ☒ NO

5. DIVERSION STRUCTURES ARE EFFECTIVELY CONSTRUCTED AND PROPERLY MAINTAINED
☐ YES ☐ NO

6. EVIDENCE OF PONDING OF WATER ON SITE
☒ YES ☐ NO

7. EVIDENCE OF IMPROPER/INADEQUATE DRAINING
☒ YES ☐ NO

8. ADEQUATE LEACHATE COLLECTION SYSTEM *(If "Yes", specify Type)*
☐ YES ☒ NO

8a. SURFACE LEACHATE SPRING
☒ YES ☐ NO West Wall of Quarry

9. RECORDS OF LEACHATE ANALYSIS
☒ YES ☐ NO "One"

10. GAS MONITORING
☒ YES ☐ NO

11. GROUNDWATER MONITORING WELLS
☒ YES ☐ NO Total of Nine

12. ARTIFICIAL MEMBRANE LINER INSTALLED
☐ YES ☒ NO

13. SPECIFIC CONTAINMENT MEASURES *(Clay Bottom, Sides, etc)*
☒ YES ☐ NO Clay Pad (24" Compacted)

14. FIXATION *(Stabilization)* OF WASTE
☐ YES ☒ NO

15. ADEQUATE CLOSURE OF INACTIVE PORTION OF FACILITY
☐ YES ☒ NO

16. COVER *(Type)*
Daily 6" clay cover plus 24 inches final cover over filled areas.

16a. THICKNESS

16b. PERMEABILITY
Unknown

16c. DAILY APPLICATION
☒ YES ☐ NO For Sanitary Landfill
Once per week for demolition fill